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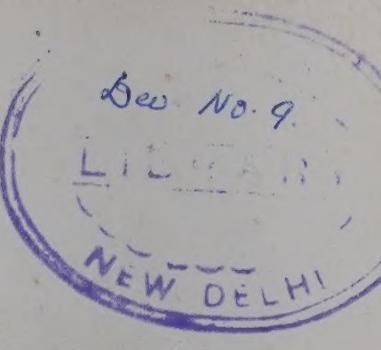
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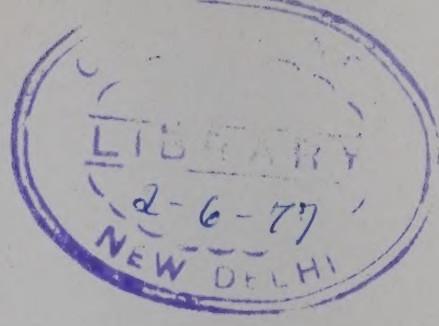
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SUMMARY CONTENTS

	<i>Page No.</i>
Preface	v
Part I	1
Medicine, Health and Human Development	
Part II	23
Alternative Approaches to Meeting Basic Health Needs in Developing Countries	
Part III	69
Basic Services for Children in Developing Countries	

PREFACE

It is with great humility and considerable diffidence that I approach the task of presenting Professor Ramalingaswami's Nehru Memorial Lecture to a much wider public. But I also do it with genuine pleasure.

When I congratulated Professor Ramalingaswami on his address he said, "You should not be surprised. I was singing your UNICEF song." And indeed he was, in a masterly fashion. But UNICEF's 'singing', that is to say UNICEF's advocacy role, is not always appreciated and not infrequently almost resented, simply because the views come 'from outside'.

Professor Ramalingaswami is not only an eminent scientist of world repute, he is also a son of what is called a developing country. In this lecture he was addressing his own people and people like them everywhere. In listening to him people are not listening to one of those outsiders who always know better, but to one of their own, who, however high he has risen in eminence and excellence, never for a moment forgets the poor, the hungry, the miserable; and among them, particularly, the children.

In this, too—and, again, I say it with humility—he adopts the stance that UNICEF aspires to. Children appeal to all of us. Call it sentimentality if you like but children have a right, and a claim on our hearts and affections in their own right. Yet, Professor Ramalingaswami is at the same time deeply aware that children are the future—or to use the phrase that has become almost hackneyed: that the child of to-day is the adult of to-morrow. This is not sentimentality but very hard headed com-

mon sense. Starve a child—of food, of affection, of freedom, of education—and you produce an adult who is stunted as an individual and holds back progress towards development rather than accelerates it.

There is deep personal sorrow for parents in the death of a child. The greater tragedy is, in a manner of speaking, those children who survive, but only as shadows of the people they might have been. This should be regarded as a national tragedy.

I feel deeply privileged to have been present when Professor Ramalingaswami delivered his lecture, the first Indian national to do so, in his inimitably gracious and urbane way. I feel even more privileged to write this exhortation to read and listen to this song which—despite all its suavity—is a song of revolution, a revolution for the benefit of children both as children and as the future leaders, architects, builders and craftsmen of this great country, India and other countries like her.

It was with some initial temerity that I first thought of presenting Professor Ramalingaswami's lecture in company with the other two statements in this booklet. But on reflection I believe that the three, taken together, constitute a logical and mutually supportive trilogy. Professor Ramalingaswami was concerned, in his own distinguished manner, to examine the delivery of health care in a way that in many respects finds an echo in the WHO/UNICEF joint study on "Alternative approaches to meeting basic health needs", extracts from which form the second statement in this booklet. Together they amount to an eloquent plea for recognition of the concept of health as a pivot of development.

The third statement places health in the broader context of basic services for children in developing countries. It represents a policy statement that was debated at length and accepted by the UNICEF Executive Board in May 1976 and which in the years to come will inform the strategy and guide the tactics not only of UNICEF but hopefully of many other members of the United Nations family, and of governments as well.

Basic services, including health as a major component, represent keys to development and to that revolution in thought and action which alone can bring full benefit to the children of the Third World, and ensure the shape of the future.

John Grun
UNICEF, SCARO
New Delhi.

PART I

MEDICINE, HEALTH AND HUMAN DEVELOPMENT

The Ninth Jawaharlal Nehru Memorial Lecture
by Professor V. Ramalingaswami, Director,
All India Institute of Medical Sciences, New Delhi

MEDICINE, HEALTH AND HUMAN DEVELOPMENT

The Concept of Human Development

I use the term human development as “Development of every man and woman—of the whole man and woman—not just the growth of things....Development geared to the basic needs of the poor....Development to ensure the humanization of man”¹. Human development deals with the processes of maturation. The environment, socio-cultural factors, genetics, changes in the human settings, many areas of scientific knowledge such as nutrition, infections, reproduction and mental health influence these maturation processes². Their timing is critical. I would like to discuss some of the phases and critical transitional events in the Human Life Cycle from the biological and health stand-point.

Intrauterine Development (“Ourselves Unborn”)

As I had reviewed earlier⁴, at the beginning one cell, and at birth some 200 billion cells, the fertilised ovum enters on a perilous voyage in the darkness of the mother’s womb^{3,4}. Blind at the beginning, its heart begins to beat at hardly three weeks of age in the uterus; respiratory movements can be recorded at 12 weeks; the rudiments of the brain form before the limbs, the arms before the legs, and the fertilised ovum becomes somewhere along the line, a live human person. Life does not start but continues and the fertilised ovum is no more alive than the spermatozoon or the unfertilised ovum from which it is derived. A cluster of so many cells is far from being a human person; the complete human person emerges only as the result of the complementarity of biological and social environments and when parents accept their

ensuing responsibilities as educators. A biological continuity exists between the mother and foetus during pregnancy, followed by emotional and functional continuity between the mother and the growing child. There is a saying in Japan for a pregnant woman, "mi hitotsu", meaning one body—the mother and the unborn baby are not separate beings. Thus one may recognise a genetic motherhood, a gestational mothherood and a social motherhood. The stage when the dignity of a human person is conferred on an embryo is uncertain. The concept of a human person includes his genetic and socio-cultural history in the form of a delicate balance between Nature and Culture.

There is a large body of evidence to suggest that the intrauterine growth and development of the foetus are influenced by a host of maternal factors of which maternal health and nutrition are of prime importance. All cultures recognise the marvellous and mysterious processes of motherhood. Many cultures exhibit a sense of wonder and equally a sense of responsibility towards the new life that is coming. Through special dietary practices and other means during pregnancy, efforts are made to ensure that the mother bears a child with the desired physical and personality characteristics. Robert Burton in his "Anatomy of Melancholy", written in the sixteenth century, tells us how the moods, emotions and ideas of the mother influence the child in her womb. There are examples in many cultures to suggest that the moods and disposition of the mother are strongly stamped on the character of the child. There is also a rich repertoire of food beliefs. Implicit in all this legend and folklore is the vague idea that while the genetic apparatus is a rough control establishing limits and directions of development, the phenotypic expression and the state of development reached are determined to a large extent by a series of epigenetic phenomena such as maternal health and nutrition, maternal behaviour and even maternal moods.

Post-natal Development (Mother and Child)

Breast Feeding

The biological link between the mother and child continues

even after birth through breast feeding upto weaning. The psychological boundaries between the mother and the child are blurred and mothers in many cultures, especially in the developing countries, view their babies much more as an extension of themselves. Cato is said to have made the children of his servants take occasional nourishment from the bosom of his wife as a sure means of securing for himself their fidelity and affection. In many developing countries where breast feeding is traditionally prolonged, this link may continue for one or two years. Breast feeding in these countries comes naturally to the mother. It can take place in front of people in the bazaar, at the road side, on the railway platform, in the fields, in the bullock-cart, on the bus, bringing with it an aura of personal involvement between the mother and the child.

Lactation is one of the most ancient mammalian characteristics⁵. Human milk is highly protective against infant malnutrition and the associated infective diarrhoeas. All mammalian milks have a highly specific composition which reflects adaptation to the specific physiological needs of each species to ensure its optimum growth and development. For example, the thick cream-like milk of the blue whale contains 50% fat and there is a powerful ejection reflex. These are adaptations to the need for a concentrated calorie-dense secretion to meet the high caloric requirement of the huge calf which is 7 metres long, in a cold environment, for relatively rapid underwater nursing between breaths and for the mother's conservation of water⁵. The most significant of the differences between human and cow's milk relates to the need for abundant supply of nutrients most needed for the rapid growth and development of the human central nervous system such as high levels of lactose, cystine, cholesterol and specific patterns of polyenoic fatty acids. Human milk has anti-infective properties and recent studies indicate that there is truth in the old wives' tale that breast feeding has a contraceptive child-spacing effect which is related to the anovulatory effect of prolactin and other hormones secreted by the anterior pituitary in response to the baby's sucking. As the Jelliffes remark, "On a world-wide basis, lactation contraception probably has a numerically greater

rate of protection from pregnancy, measured in women-months per year, than has currently been achieved by technological devices"⁵. The recorded decline in breast feeding in Singapore between the 1950's and 1960's required an approximate expenditure of the equivalent of 1.8 million dollars to purchase substitute formulas; while in 1968 in the Philippines, the expense was about 33 million dollars. In Kenya it was estimated that 11.5 million dollars loss in breast milk was equivalent to two-thirds of the health budget. If all women in India cease to breast-feed their children and use cow's milk formulas as replacement, an additional 114 million lactating cattle would be needed⁵. Human lactation and breast feeding have nutritional, anti-infective, contraceptive and economic significance and must be considered a resource priority in national development. The decline in breast feeding in the past few decades is a consequence of a complex set of forces including rural-urban migration, employment of women, fashion and advertising practices of manufacturers of infant formulas and weaning foods.

The Weaning Process—A Potential Hazard

The period of weaning constitutes a potential hazard to the health of the child in developing countries, due mainly to ignorance and insufficiency of food. Weaning is not a precise physiologically determined event but represents an interface between continued but declining breast feeding and increasing introduction of foods determined by cultural practices, food availability and the economic means of the family. The post-weaning pre-school period continues to be a period of vulnerability for the child as the child becomes increasingly independent of the mother and increasingly exposed to the hazards of the environment.

School age, puberty and adolescence have their own specific physiological requirements and are characterised by rapid growth, development of secondary sex characters and progressive anatomical and endocrinial maturation.

Critical Periods of Development

The concept of critical periods of development is well known and I had discussed this as well as the role of social environment at length in the Parisot lecture⁴. Briefly, the critical periods of development involve time-dependent factors such as the appearance of new enzyme proteins and their co-factors, loss of inhibitors, cyto-architectural adjustments and the appearance of hormones. Genetic control, hormonal regulation and the patterned accretion of proteins of many types are involved in the mediation of growth and development. Underlying growth and development lie a variety of biochemical and physiological vicissitudes, all meshing to produce the organism we know at birth⁴. It has been demonstrated in animals that alterations in the plane of nutrition can have permanent consequences if imposed during a critical period of growth. The earlier the insult, the more marked the retardation in growth and less likely the recovery. In view of these results, the possibility of permanent effects on somatic growth and brain growth in animals and under-nourished populations has been raised. There may be a once-only opportunity for the proper growth and development of the brain and optimum conditions must be provided at critical periods. There is extensive scientific literature to show that in times of nutritional deprivation, the growth of the foetus is adversely affected. The birth weights are generally lower in developing countries where malnutrition, infections and anaemia are rampant, and repeated, closely spaced pregnancies are common. Human studies have shown a distinct association of retarded body and brain growth and mental development in children with an antecedent history of severe malnutrition in infancy.

The Role of Social Environment

The role of restrictions other than the nutritional ones that go hand in hand in impoverished communities must be seriously considered. Restrictions in early experiences can lead to impaired functions, to limited perceptual and social experiences. We know that early influences play an important part in converting genetic potentiality into phenotypic reality and that the latent potentia-

lities of man have a better chance of emerging if the social environment is diverse and stimulating. Featureless environments, drab uniformity and narrow range of life experiences cripple intellectual growth. Uniformity of surroundings and absolute conformity of behaviour may be detrimental to development. As Rene Dubos said, diversity is vastly more important than efficiency. It is indeed essential for survival. Each one of us is the fruit of a germinal entity moulded by surrounding circumstances. The poverty syndrome is characterised by low incomes, low educational levels, poor sanitary conditions, diminished food intake, repeated episodes of infectious diseases, too many children, births too closely spaced, family instability, low parental attention, low social status in the community, etc. All these contribute to the vicious cycle of "obdurate under-development" and exert a determining influence on the growth and development of the child. For nearly a third of the first two years of life, the child may be significantly ill as a result of malnutrition and infections. If he survives these episodes, (it is more often survival than escape) he provides a living record of continuous stresses, a relic of the dramatic impact of the early years of life. He is another human being with an altered body composition, with his own bio-characteristics, his own behaviour, with an asymmetry of body proportions and a disharmony of growth. The shaping influences of the biological environment, the cultural envelope and individual experience interact with man's genetic make-up. The rapidly growing brain of the foetus and infant is dependent not only on the adequacy of nutrition but also on feeling and knowledge. The extraordinary dependence of the human young upon adult care and caring, and of the child upon the insight of the mother provide unparalleled opportunities, both for optimal mental and emotional development by care, and for defective and distorted development by neglect. How marvellous it would be if pregnancy grew out of an immaculate desire towards the child's good life! The last trimester of pregnancy and the first two years of post-natal life offer the greatest opportunities for optimum human growth and development.

The Health Scene Today

Inappropriateness of Western Patterns

Despite the magic bullets of modern medicine and everyday pronouncements of major break-throughs in medical and health technology, the first priority health needs of the majority of the population in developing countries are not yet met even in a rudimentary manner. Four-fifths of the world's population live in rural areas and more than three quarters of them in developing countries have little or no access to modern medical and health care. Lack of the simplest means of health care is resulting in high rates of morbidity and mortality from diseases that can be readily prevented⁶. Conventional health services patterned along Western lines have proved inappropriate and far too expensive to meet the basic needs of people⁷. The result is that in many developing countries 50 per cent of the total mortality is contributed by mortality in children under five years of age; the population is crowded in an environment loaded with the causes of disease and death. There is excess fertility characterised by too many pregnancies taking place too early, too often and too close, by a disease pattern reflecting the synergistic interaction between malnutrition and infection. We are faced with severely limited resources to match against large and unresolved problems. According to 1971 data, life expectancy at birth was 43 in Africa, 50 in Asia and 71 in Europe and North America.

The distortions and incongruities that characterise the present system are many—the over-emphasis on doctors and specialists, on hospitalised individual medical care to the detriment of front line primary health care for the masses of the people, curative services to the neglect of preventive services, urban orientation to the neglect of rural masses, the draining away of limited resources in the provision of advanced levels of health care to a relatively small segment of the population (the Prime Minister made a reference to this the other day while talking to a group of physicians), the distorted health manpower structure that mismatches the needs and in the end, the wide gap that exists between the capabilities of modern medicine and the unfulfilled expec-

tations of people. Hospitals have become visible symbols of medical care caring for those who come to it, not necessarily of those most afflicted or most needy. The net result is that we know more about individual illnesses than about the health of communities. Expensive specific care is often liberally provided but comprehensive health care is generally lacking. A bed in the hospital is an expensive proposition and yet bed: population ratios are often trotted out as health plan targets. The rigid sectoral structure and centralised organisation of conventional Government health services are not exactly conducive to the achievement of a system which is community-based. Doctor: population ratios have become dominant concerns and comparisons are often made with Western ratios, despite the high cost and long period of training required for a doctor. It is not often realised that the health of a community cannot easily be shown to be directly related to the number of doctors. Doctor: population ratios may have been fulfilled but the human purposes and content of medical education are lacking. Educational and training programmes frequently have become irrelevant and not commensurate with local health needs and aspirations. A communication gap has developed between professional personnel and primary health care workers. The distribution of professional personnel within developing countries is almost inversely proportional to the distribution of people. To cap it all, there is the paradoxical phenomenon of under-utilisation of available health services in some cases. The hospital has been described by Dorothea Sich as a "self-chosen ghetto of the medical profession" and modern doctors as "professional cripples" who cannot function without a hospital. Physicians in developing countries become estranged from their own people in the course of their training. The ablest men and women are not tackling the most acute and difficult problems.

A Strategy of Health for the Majority

It is not a question of a little more technology or more hospitals, or more of the same recipe. It is a question of seeking alternative approaches that make health care accessible and

acceptable to the largest number. We simply must reverse the process that has taken place all along that a relatively small number have access to almost all the health care facilities. Whatever strategy is adopted, it must confer the greatest possible benefit on the largest number of people. It must cater to the most needy segments of the community. It must fulfil the daily wants of people scattered over widely different terrains—the congested urban and rural areas, the fringes and outlying areas, the foot-hills and the high mountains. It must be egalitarian based on wide coverage for the many. What are the guiding principles of such a strategy?

One of the principal causes of failure of the present-day health care system is our failure to culturally adapt it to indigenous societies. Here, modern medicine has much to learn from the practitioners of indigenous systems of medicine. The scientific basis of medicine remains the same whether it is practised in Madras or Manhattan, New Delhi or New York; but the circumstances of its application to the rural and urban societies in each country differ with the local health problems and the social, cultural and economic settings in which they arise. Medical care and environmental care have to be given within the social matrix and illnesses dealt with at their origins in the homes and farms of people. Physical distances may deter people from making use of health services provided in the health centres and sub-centres, but I believe that social distances are more important than physical distances in the present-day alienation of health services from the people. It is a question of deculturising medicine and reculturising it to suit the socio-cultural patterns in a given country or region. In this process of reculturisation, the provision of whole person medicine is important. People want to be treated as whole human beings and expect more from medicine than a mere scientific study of their individual organs.

The centre of gravity of medicine must now move away from the hospital to the community. Mass immunization, environmental protection, safe water, elimination of flies, mosquitoes and other vectors, nutrition, health education, fertility regulation,

rehabilitation, these are some of the components of community health on which the greatest possible emphasis has to be laid.

Involvement of the Masses

The need for a radical reorientation in the organisation of health services and in the outlook of health personnel is obvious. Stirring the mass of people into taking responsibility for their own personal health and for the health of their neighbours is a most vital link. Our greatest resource is human resource. Health services must be considered as a social enterprise informed by concern for others. The translation of much of medical knowledge into practical actions involves the use of simple and inexpensive interventions which can be readily implemented by ordinary people with minimal training, leading to great benefits to society. A new national ethos has to be generated which will have compassion in serving the people as the soul of health services. An indigenous health system based on community-derived health personnel is needed in which the services are economical, acceptable, continuous and belong to the people. According to Ivan Illich, health is "a culturally shaped reaction to a socially created reality".⁸ He says there is a great deal of medical capability outside the medical profession and unlimited opportunities outside formal institutions. Every man and woman is a secret teacher. Illich also believes that that society which can reduce professional intervention to the minimum will provide the best conditions for health. Man's energy is a most powerful instrument of health and socio-economic development.⁹

A Biological Minimum Programme

The health scene in developing countries is characterised by a cluster of causes and multiplicity of effects. It is rational and economical to deal with the cluster on a broad front in the form of an integrated package of services. A package of services is much more than a mere collection of health interventions. Interventions for the treatment and prevention of infectious

diseases, for the protection of maternal and child health and for fertility regulation form the tripod on which a package of services could be based. This is what I called some years ago as a Biological Minimum Programme. From the practical stand-point, there are advantages in an integrated package of services since nutrition, health and family planning intervention programmes are aimed at the same target groups, namely women and children; they use the same entry points, they employ workers with similar skills, and a similar delivery system. Despite these advantages, however, integration is where the programme flounders. We need to develop the integrated approach not only with the institutional framework of hospitals and health centres but also in the village homes. We need to develop a system that integrates nutritional, fertility regulation and primary health care measures at certain critical life points. The adolescent female, the pregnant and lactating mother and the weaning child constitute the critical life points¹⁰. The system should be flexible and strive for a synthesis between technical and bio-traditional methods.

Most of the industrialised countries have passed through the demographic transition and reached the stage where the population growth is either zero or close to it. This transition had taken 50 to 100 years to evolve¹¹. Virtually, all developing countries have passed through the stage of declining death rates and many are now in the process of maximum population growth. Evidence from Singapore, Mauritius and Sri Lanka indicates that they can reduce birth rates much more quickly within 20 to 30 years. Although it is probable that rising incomes and improved health will eventually bring down the birth rates, this is by no means a certainty and the possibility, a disturbing possibility, cannot be excluded that rising incomes could lead to higher fertility, at least initially under some circumstances, especially when initial income levels are very low and the rate of increment is modest¹².

In the nutritional sector, the approaches should be related to cultural practices, local needs and existing feeding patterns⁵.

Breast feeding, as a means of economically supplying the specific nutrients required by the young infant with simultaneous advantages of biological contraception and chemoprophylaxis, should have a prominent place in the programme. The ensuring of satisfactory nutrition of the pregnant mother, especially in the third trimester of pregnancy; the use of weaning mixtures derived from traditional foods using culturally and economically appropriate technical methods; simple procuring and storage practices at the village level to minimise post-harvest food and nutrient losses, and grain storage depots; producing low cost weaning mixtures; the development of adaptive maternal and child health services with family planning components; prevention and therapy of common infections contributing to malnutrition—these should form the basic ingredients of a modern indigenous technology for health care delivery. Inadequate intake of food is the basic problem in nutrition throughout the world. Most cereals contain 8 to 12 per cent of protein and are consumed with moderate quantities of legumes and vegetables. A modest increase in cereal and legume consumption by children can significantly reduce the burden of Protein Calorie Malnutrition¹³. Simple and relatively inexpensive programmes can be built in to control specific nutritional problems such as vitamin A deficiency blindness, nutritional anaemia, endemic goitre. Immunization, proper management of diarrhoea and dehydration form a part of the package. The use of simplified health techniques, with outreach of the community as the central theme, and of integrated package of health services can bring about quite dramatic and visible improvements in the health of the community. This has now been demonstrated in many settings, filling one with a sense of optimism for the future⁶.

The Community Health Care Worker

The system envisaged here utilises simply trained personnel indigenous to the rural community. The system will have access to every pregnant and lactating mother in the home or clinic so that provision of integrated services may become as obligatory and feasible as smallpox vaccination. The central figure to

extend these basic health services to rural areas and urban slums is a community health care worker chosen from the village and by the village and trained to deliver elementary integrated services in Maternal and Child Health, nutrition, family planning and environmental sanitation. The main thrust would be preventive and educational but also include immunization, contraception, first-aid, minor curative services and referral to the nearest health facility¹⁴. The effective use of the village level workers will require extreme decentralisation and massive use of these workers with a carefully worked out hierarchy of training responsibilities. Hundreds of thousands of village level workers throughout the developing world can be given short courses of training and can attain competence to look after the minimum health needs of the population¹⁵. Experience has shown that if properly trained and integrated in the health care system, they can be effective, acceptable and inexpensive. This is undoubtedly a difficult task to accomplish, requiring a firm national policy of primary health care for the under-privileged. It will involve a virtual revolution in the health service system. Recruited among the villagers, trained in or near the village, employed full-time or part-time, a system employing them can only succeed if the serious problems associated with their deployment are studied and resolved¹⁶. Selection of these village level workers, provision of logistic and professional support of the entire health service, including a total commitment of the highest level of the health service, are problems which need to be resolved if this system is not to be rejected by the public as insufficient or inefficient.

Community Development

Community health actions cannot flourish without a vital linkage with the wider goals of community development. Without the participation of the community, health becomes, as Dr Mahler said, a technological mockery. The health care system must be supported by a community based organisation. The pattern of rural structures is important for the successful outcome of the rural development package. The by-passed popu-

lation of small farmers and landless labourers and the slum dwellers in urban and peri-urban areas must be reached. The 20-point economic programme enunciated by the Prime Minister aims at attacking the citadels of poverty in rural India. A health programme complementary to the economic programme will have a synergistic effect on human development. The interface between medically based actions and non-medical community activities should be exploited to the fullest possible extent. Economic programmes that have a bearing on water, sanitation housing, roads and food exert a profound influence on health.

Education and Research Responses

Our teaching and research institutions have to come out of their cloisters, not only to train health professionals and their assistants, but also to research upon the best models of health care delivery systems. The structure of the curriculum, the interests and attitudes of the faculty, the social status of the specialists, the whole environment of the urban teaching hospitals militate against the doctor developing a live interest in the problems of rural societies. We need a whole new philosophy in the education of physicians and their assistants. It is not a matter of adding to or subtracting a few hours from the curriculum. Medical and auxiliary education must fulfil national tasks and train clinical and public health practitioners who are well versed in vocational skills, whose main function is delivery of health services at the doorstep of need. Medical education must primarily provide the personnel that are willing and able to function effectively in the primary health centres. At the same time we must see that community health work is not considered third rate, fit only for the unfit, but is filled with scholarly foundations and provides an intellectual challenge by training these students in the primary disciplines of ecology, epidemiology, human behaviour, human development, sociology and demography—the study of man, not in isolation in the teaching hospital, but in relation to his fellows and his environment. In doing so, there should be no dilution of standards. In all training programmes the ultimate aim would be to enable the team to use both the community and

the individual approach in the crucial fields of family planning, environmental control, immunization and nutrition.

Operational research is a hackneyed term. Through it, one has to bring about a harmonious integration of different components of the health care delivery system in a multi-disciplinary approach in which social and behavioural sciences interact with biomedical sciences for a deeper understanding of the problems involved. Research is also needed to evolve entirely new patterns of community based education with emphasis on preventive and promotive health. Preoccupation with operational research and community based research on the pressing health problems should not lead to a relative neglect of basic and clinical research. Indeed for the final solution of some of the pressing problems we face today, there is need for intensification of basic research. No amount of concentrated public health activity on isolated problems can lead to permanent and lasting solutions unless there is a core of well trained workers in the country who are equipped to tackle any situation arising out of the newly applied measures from time to time. The price of freedom from disease is eternal vigilance. Without basic research, there cannot be any proper teaching of science, no scientific workers, no applied science and no indigenous capability in science. Existing methods are not entirely adequate for the control of some of the major communicable diseases and the resources required to tackle them on the basis of present knowledge are so large and the time scale so wide that it is essential to find better solutions. The advent of molecular biology, genetics and immunology offers opportunities for fresh approaches to the control of communicable diseases. I would advocate a new synthesis of laboratory, clinical and epidemiological research in order to discover new methods for the prevention, diagnosis and treatment of communicable diseases. Malaria, which was all but eradicated, is now rapidly resurging in many parts of the developing world. Despite the 20 years *saga* of gigantic international collaborative effort in malaria eradication and 50 years of waxing and waning promise, the conquest of malaria is still a long way at a time when smallpox has been eradicated¹⁵. Apart from adminis-

trative and managerial failures, our technological means of controlling malaria are becoming increasingly inadequate. Resistance of anopheline mosquitoes to insecticides has assumed serious proportions. Alternative compounds to which anopheles shows some susceptibility are considerably more expensive than chlorinated hydrocarbons. Resistance of malarial plasmodia to 4-amino-quinolines, although limited, remains a menace. Obviously, time is not on our side. There is an urgent need for better and more acceptable insecticides and newer anti-malarial drugs.

In the case of leprosy, it is perhaps an irony of history that the first bacillus ever observed in the affected human tissues should even today defy all attempts at cultivation outside the human body. There is no evidence that the worldwide incidence of leprosy has been lowered in recent decades in spite of the availability of the drug, dapsone. This drug is slow in its action, relapses are not infrequent and there are side effects. Increasing numbers of strains of the bacillus are becoming resistant. The frustrations that had bedevilled scientists in this area at last seem to be giving way and the gentle opening of the door of immunology may yet prove to be the most important development in medicine today. Decisive progress in this field is critically dependent upon development of appropriate immunological techniques for detection and treatment of leprosy.

We need intensive basic research to resolve the elementary needs of people. Indeed, the living conditions of people in developing countries constitute a challenge to science as a whole. As the Prime Minister said in her address to the Indian Science Congress in Nagpur last year, it would be a fallacy to suppose that a lower level of science and technology would be adequate to deal with our problems. Scientific investigations and technological innovation of a prime nature are often required. She asked the interesting question "how simple is simple?" and quoted Ghalib as saying "how difficult it is to make anything simple; even man finds it hard to be human".

In sum, health is a major pathway to human development and health advances have an instrumental value in the developmental process through their impact on social and economic conditions. It is both a means as well as one of the end products of development. A balance needs to be struck between personal health services, environmental health services and community oriented health services. This will undoubtedly entail a shift in emphasis from a predominantly hospital-based curative care to a community based curative and preventive care; from a largely urban to mainly rural; from the privileged to the underprivileged segments of society; from vertical, single phase programmes to integrated health action. Research must subserve these needs; it should be discriminating, intensive and continuous, with precise objectives leading to practical measures. The basic philosophy of medical research policy is not merely to make medicine more efficient but to apply the results of research endeavour for the human good. It should aim at maintaining a climate of discovery for the flourishing of indigenous scientific talent. Modern medicine is beginning to penetrate the social veil and reach the homes of people. When this is accomplished, it will be medicine in the raw, rooted in the crucible of reality, affecting the daily lives of people. As Joshua Lederberg said, those that are concerned with the future of man will have to pay attention to the overwhelming majority of contemporary men¹⁶ and I would add, to the men yet unborn. I am convinced that relatively high levels of health are possible even with limited resources. I believe that these high levels can be attained within a relatively short span of time and need not necessarily await as by-products of comparable economic growth. What I have stated here is neither Utopia nor Arcadia. The principles enunciated are not new.

It has been a moving experience for me to make this presentation associated with the name of one of the greatest men that ever trod upon this planet. During the past one year, I had the opportunity to study the numerous speeches and writings of Jawaharlal Nehru in matters concerning Medicine and Public Health. I discovered that Nehru's world of human health had a wide

canvas and when put together, made a remarkable blueprint for the nation's health. I am grateful for this opportunity to serve the memory of a man of great intellectual integrity and human excellence, a man for whom nothing human was foreign, whose mind was impregnated with the deep pathos of human lives and who regarded children as the future of India, a man whose mission, as President Radhakrishnan said, was ethical socialism in the finest Indian tradition.

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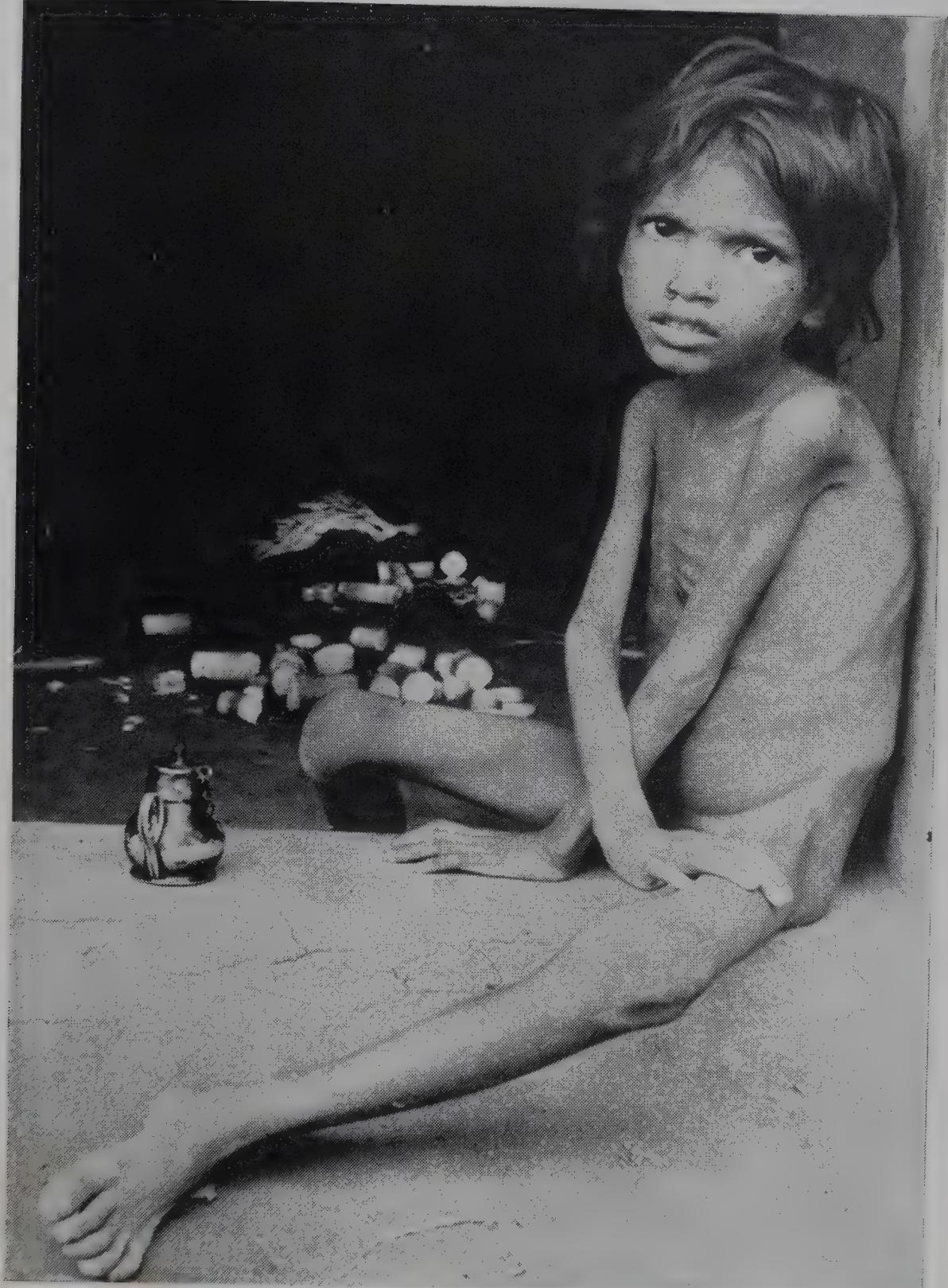
One of the basic services is health care for mothers and children.

UNICEF Photo by T.S. Satyan



Clean water supply helps to prevent the spread of disease.

UNICEF Photo by T.S. Satyan



A malnourished child, reflecting the plight of millions of children in developing countries.

UNICEF Photo by T.S. Satyan



Villagers must be rescued from the trap of illiteracy.

UNICEF Photo by T.S. Satyan

PART II

ALTERNATIVE APPROACHES TO MEETING BASIC HEALTH NEEDS IN DEVELOPING COUNTRIES

Excerpts from a joint UNICEF/WHO Study by V. Djubanovic
and E.P. Mach, 1975

CONTENTS

	<i>Page</i>
World Poverty and Health	27
The Underprivileged	29
The Glaring Contrasts in Health	32
The Obstacles to be Overcome	35
Assessment	51
Recommendations to WHO & UNICEF	64

WORLD POVERTY AND HEALTH

What we know as the developing world, far from being a single homogeneous entity, is made up of a great variety of widely differing countries and areas at different stages of development. Nevertheless, their progress is conditioned by certain factors in common, and in some cases it may be possible to consider common solutions to their problems.

These problems have complex political, social, cultural, and environmental roots. Extremely limited resources, poor communications, vast distances, individual and community poverty, and lack of education act and react upon one another in such a way as to maintain the developing countries in a perpetual state of poverty.

The most obvious economic signs of underdevelopment are low labour productivity, a low national product and a low average income per person. The standard of living in developing countries is low for the great mass of the people, and life is beset by the problems caused by insufficient or faulty food intake, poor housing conditions, poor health, inadequate public and private provision for hygiene and medical care, insufficient communication, transport, and educational facilities, and systems of education and training that are ill adapted to the people's needs.

Although, owing to such factors as different price systems and inflation, per capita income can be misleading as an index of the standard of living, it is worth noting that in some Asian and African countries the daily per capita income is about 20-24 US cents, and in some of them it is less than 6 US cents for the

poorest 20% of the population. Per capita consumption in a number of countries is under US \$94 a year. These figures compare starkly with an estimated per capita income in the USA of \$4980 and in France of \$3400 a year in 1972.

Low incomes defeat the desire of governments—which may be the only driving force able to introduce change—to provide public services, particularly social services, from national tax revenue for the poorest sector of the population.

Among the other obstacles to development, many countries have to contend with an unfavourable physical environment—poor soil, difficult terrain, lack of forest and mineral resources—and an adverse climate with periodic excessive rainfall, extremes of temperature, and droughts. These physical obstacles may be compounded by the insufficient or inappropriate application of modern science and technology and unfavourable international terms of trade.

The rapid increase in the world's population and its effect in defeating the efforts of developing countries to raise their standards of living have been emphasized often enough. In some developing countries it has more than cancelled out the increase in the gross domestic product, while per capita output has actually fallen.

According to estimates and projections for 1970-1980 in the United Nations 1970 Report on the World Social Situation, the total population of the less developed regions may increase during the decade by 28%, the number of pre-school children by 21% and the number of school-age children by 28%. To provide this rapidly growing population with food, housing, education and employment, the developing world is faced with a task of daunting proportions. The challenge will become insuperable in the decades to come unless the present development strategy is radically changed.

THE UNDERPRIVILEGED

The Rural Population

In 1970, the rural population of the less developed regions of the world was estimated at 1910 million—75% of the total population. By the year 2000 it will probably have risen to 2906 million, despite wholesale migration from the country to urban areas.

At the same time, people in many rural districts are isolated and dispersed, so that public services of the conventional type, including health services, are difficult and expensive to provide. Isolation of a community from the outside world is bound to hamper communication and put a brake on the improvement of living standards. What is more, dispersal and isolation add to the difficulties of educating, training, and employing qualified manpower.

It is worth enumerating some of the characteristics of underdeveloped rural areas:

economic stagnation

cultural patterns that are unfavourable to development
agricultural underemployment, and lack of alternative
employment opportunities

poor quality of life because of the scarcity of essential goods,
facilities, and money

isolation caused by distance and poor communications
an unfavourable environment predisposing to communicable
diseases and malnutrition

inadequate health facilities and lack of sanitation
poor educational opportunities
social injustice including inequitable land tenure systems
and a rigid hierarchy and class structure
inadequate representation and influence in national decision-making.

The Nomads

There are some 50-100 million nomads and semi-nomads in the world. About 90% of them live in Africa or Asia, in the dry belt that circles the earth north of the Equator and includes the arid land from Senegal and the Sahel region of Africa through south-west Asia to Pakistan and India. In distinction to nomads, who depend on migration for their livelihood and have no fixed dwellings, semi-nomads, including transhumants, are periodic migrants with one or more fixed dwellings, who often engage in some agricultural activity. Nomads usually keep domesticated animals—cows, camels, sheep, or goats—but some are hunters and collectors, as in Australia, the Kalahari desert, Amazonia, and the Arctic.

Nomads have their own needs and problems. As the present catastrophic drought in the Sahel region has shown, in nomadic life there is a narrow margin between survival and death. Because of their constant movement and dispersion, nomads are difficult to reach with health services, which tend as a result to neglect them. In some development plans they are ignored or wrongly included with the rural population. Their particular situation needs to be recognized and given separate attention.

Slums and Shanty Towns

During the last two decades there has been an enormous increase in the number of people living in slums and shanty towns in the poorer countries. This growth is continuing and perhaps accelerating. Today, about one-third of city dwellers in the

developing countries live in slums and shanty towns. The proportion is increasing and exerts a major influence on the city environment.

The main reason for this growth is that large numbers of people are moving from rural areas to the cities in search of work and a better life. This is not to say that work is easy to find in the cities. The urban population of developing countries is increasing much faster than the supply of jobs; even so, the situation is worse in rural areas. Urban poverty is often a reflexion of the overflow of rural poverty.

Almost half the people now living in slums and shanty towns are children. At current growth rates, their number will double by 1980. This is the most tragic aspect of the problem—the slum conditions mortgage the future of many of these children, especially the very young in their most formative period of growth. Child mortality and suffering in these communities are very high and life expectancy is low.

THE GLARING CONTRASTS IN HEALTH

Throughout the world, for lack of even the simplest measures of health care, vast numbers of people are dying of preventable and curable diseases, often associated with malnutrition, or survive with impaired bodies and intellects. There are striking differences in the vital statistics for the underprivileged and the developed world. According to 1971 data, the life expectancy at birth was 43 years in Africa and 50 years in Asia, compared with 71 in Europe and North America.

During the last decade, maternal and childhood mortality rates have been steadily decreasing in most parts of the world. In many developing countries, however, the levels of mortality remain high and less progress has been made in reducing morbidity and improving the health and quality of life of mothers, children and families.

The most serious health problems of mothers and children and the high rates of mortality and morbidity in the world as a whole, result from various interrelated conditions: malnutrition, infection, and the consequences of ill-timed, closely spaced, and too frequent pregnancies, and the lack of health care and other social services, against a background of generally poor social and economic conditions.

Problems related to the first year of life must be considered in the context of the 120 million or so births a year in a world population of more than 3400 million. According to United Nations estimates for 1965-69, some 84% of all births during that period occurred in developing countries. The estimated

annual number of infant deaths in those countries over the same period reached 14.2 million out of 101 million live births, as compared with 516,000 out of 19 million live births in developed areas. In the less developed regions the infant mortality rate was 140 per 1000 live births, dramatically higher than the rate of 27 per 1000 in the more developed regions; there was an enormous variation among countries, from an estimated maximum of about 200 to a minimum of 9.6 per 1000. If developing countries could bring their infant mortality rates down to the average rate of the developed, some 11 million infant lives could be saved each year.

For children aged one to four years, the death rate in general is relatively lower than for infants, but the contrasts between developed and developing countries in this older age group is even greater. While on average the infant mortality rate is 10-20 times higher in developing than in developed countries, the average mortality rate between the ages of one and four years is 30-50 times higher.

Data on nutritional deficiency, low birth weight, and immaturity indicate that perhaps the single most important factor influencing the excessive mortality in developing areas is the deficient nutritional state of the population. Mothers who have been handicapped since early life by nutritional deficiency and various adverse environmental factors probably give birth to low-weight infants; many of these infants die from infectious diseases because of their greater vulnerability, while those who survive continue, through nutritional deficiency, to be at higher risk from the hazards of the environment.

The principal causes of morbidity in the developing world are malnutrition, vectorborne diseases, gastrointestinal diseases, and respiratory diseases—themselves the result of poverty, squalor and ignorance. To them must be added the diseases of mothers related to deprivation, unregulated fertility, and exhaustion, with their effects on the unborn and newborn child. These conditions are linked with social problems such as overwork

among women, unemployment among the young, population growth and urbanization; and their solution calls for an integrated effort in which the health services have a major role to play.

THE OBSTACLES TO BE OVERCOME

Remedies for many of the shortcomings of health services are known and available, but some cannot be usefully applied unless the overall concept of health care is appropriately modified. For a number of problems a new approach cannot in itself be considered a remedy, but rather as a prerequisite to the successful application of largely known remedial action. The main need today is to develop systems through which effective health care can be made both accessible and acceptable to the people.

Problems of Broad Choices and Approaches

- (a) *Lack of clear national health policies and poor linkage of health service systems with other components of national development*

An effective health approach requires the coordinated efforts of all those sectors that can contribute directly or indirectly to the promotion of well-being. This is so not only at the central level but also at the intermediate and—above all—the peripheral level, where policies should have their roots. Moreover, health should be considered as an integral part of development, with clearly defined goals, policies and plans. In many developing countries this approach is not followed. As a consequence, overall health goals and policies are missing, and this largely precludes health planning. The efforts made are fragmentary, not necessarily related to those of other sectors, and not directed towards supporting national growth on a broad scale by fostering human well-being and resources. Health activities often become stagnant and health development projects collapse for lack

of proper budgetary support. Even when policies and goals are established and the principle of multi-sectoral action is accepted, agencies, either national or international, have difficulty in crossing sectoral lines in order to implement the decisions.

Measures have been developed, with the help of biomedical research, to tackle many of the health problems of developing countries. Although, for some of the problems, no simple and effective technology is available, many technologies have been standardized and simplified to such a degree that they can be used effectively at low cost and with inexpensively trained staff on a large enough scale to make a substantial impact. Regrettably, they are not yet being widely applied.

Much of modern health technology, however, is inappropriate or irrelevant to the immediate needs of people in developing countries. Moreover, owing to the high cost of sophisticated equipment and other requirements, it tends to absorb, for the benefit of a minority of the population, a substantial share of limited resources that should be used to benefit all the people. This is a problem that needs to be dealt with by national governments.

(b) Lack of clear priorities

Clear, concise and logical priorities within health care systems are rarely laid down. Realistic criteria for the development of priorities are formulated even more rarely. For example, scant attention is given to the balance between curative, preventive, and promotional activities and the division of resources among them; curative services usually absorb a disproportionate share of money, manpower, and facilities. Priorities between primary care and referral care services are seldom defined in a general plan. Nor are priorities within the three main sectors themselves often clearly delineated. A balance is not always established on objective grounds between personal health services, environmental health services, and community-oriented activities. As a consequence, curative services and, more generally, personal services tend to receive undue emphasis, even when

better results might be achieved by some other use of the same limited resources. Again, not enough is done to assess alternative methods of combating communicable diseases to obtain the best results, while the use of measures not directly related to, but greatly affecting health, is frequently neglected.

(c) *Opposition to change in the social aspects of health policy*

The fact has to be faced that established health associations, institutions and organizations, particularly in the professional sphere, tend to resist changes such as the introduction of a national health service, compulsory or voluntary health insurance, or the employment of new categories of health manpower. Whatever the motives of these organizations—to defend their own interests or preserve cherished traditions—this resistance may have serious repercussions on health plans, programmes and policies, since highly regarded members of the medical professions often have great influence on policy and on those who take the decisions, if they are not themselves the persons who make policy or take decisions.

(d) *Inadequate community involvement in providing health care*

Most health care delivery systems have failed to make care accessible and acceptable to the people who need it. Primary health care must be available close to people's homes. As the acceptance of many health measures may involve a change in living habits, the community itself must decide on the measures, help in carrying them out, and evaluate their success. Basic health care can be given by ordinary people provided they have adequate education, training and technical advice and supervision.

It follows that there must be a clearly defined relationship between the two components of frontline health care—the activities carried out by the government and those carried out by the people themselves. The relative contribution of each of the two partners to health care activity as a whole should be

determined by the political and socio-economic situation in each country or geographical area.

Organizing the delivery of health care so that part of it "belongs" to those it is designed to serve has enormous advantages. Local resources can be tapped and the community's view of the nature of the system can be radically changed. Ideally, this component of health care delivery should be under the control and administration of the community itself, but such a division of responsibilities within the system need not detract in any way from the primary principle that health care delivery must be thought of and planned as a whole, in the light of clear goals for national health care.

The obstacles to community participation of this kind include:

- in some countries a political system that does not encourage local self-government—a prerequisite to local involvement in health and development in general
- the rigid sectoral structure and centralized organization of most conventional government health services
- competition between the traditional system of health care already existing at the local level and the modern system of health care
- the system of beliefs (religion, caste, etc.) of communities in peasant societies.

(e) *Inappropriate training of health personnel*

Education and training programmes, both undergraduate and post-graduate, at home or abroad, are frequently irrelevant to, or fall short of, local health needs and aspirations. Examples of educational systems planned to provide suitable staff for national health needs are few and far between. Graduates in general find it hard to adapt themselves to the type of work necessary to meet basic national needs and prefer to do the work they are trained for. Higher education thus tends to create a

communication gap between professional personnel and primary health workers, as well as between the professionals and the unsophisticated people they should serve. Professionals are, in the main, unwilling to work in the rural areas where health services are most needed while, paradoxically, they resist the delegation to non-professional health workers of responsibility for primary health care. The medical profession often opposes new types of health personnel on the ground that providing medical care is too important, too complex, and too dangerous to be left in the hands of less trained or differently trained personnel. This opposition may be disruptive since, in order to function effectively, primary health workers need the active support of physicians or other health service staff.

Equally, the training of auxiliaries today usually leaves much to be desired. Seldom is it planned according to priorities and the job to be done. More often the curricula look like simplifications of professional ones. To strengthen and add systematically to their professional knowledge and skills, in line with the national development plan for health services, auxiliaries with limited basic education and brief preparation require periodic refresher courses and more advanced training. They generally do not get them.

Problems of Resources

(a) *Inadequacy and maldistribution of resources for health services*

The developing world lacks human, material, and financial resources to meet its health needs. In some countries there is an absolute shortage, and the situation is often complicated by faulty utilization or distribution of the resources that exist.

Scarcity of money affects all parts of the health delivery system. It first shows itself at the national level, both in the routine allocation of yearly budgets to the various sectors of the economy and in the distribution of funds to authorities responsible for national development plans. One useful index of financial

resources is per capita health expenditure; although this index is not strictly comparable among countries, the figure is low in all developing countries, and lowest in the neediest areas.

Though felt throughout the health system, the shortage of financial resources affects the larger, needier rural population more than the city dwellers. Frequently modelled on the pattern of the developed countries, the health sector of developing countries is often hospital-based, relies on relatively sophisticated technology, and places emphasis on specialized medicine. As a result, it may absorb an unduly large share of the health budget to serve a comparatively small, privileged clientele. In many developing countries over half of the national health budget is spent on health care in urban areas, the home of no more than a fifth of the total population.

The shortage and maldistribution of human resources are just as striking. The distribution of professional personnel within developing countries is almost inversely proportional to the distribution of the people. This phenomenon is not confined to physicians. Outside the main cities and towns there are very few professional health personnel, and they work in public, voluntary, or mission services. It is not uncommon for populations of 50,000 or even more to be served by one physician. Health personnel are also poorly distributed in most of the countries where a large number of professionals are trained. Most educational systems, as has already been suggested, produce professionals in accordance neither with the country's needs nor with the expectations of the trainees.

(b) Non-utilization of actual and potential resources

Despite the shortage of all types of resources, the paradoxical phenomenon of under-utilization of the health services that are available is widespread in developing countries. The reasons for this differ from culture to culture and from situation to situation. In many cases it reflects such factors as the attitudes of health personnel, disregard of traditional systems and personnel,

insufficient awareness of the need for community knowledge and involvement, physical and social inaccessibility, and poor transport. It is also true, however, that people are often not informed about available health services or are not clearly aware of the types of health measures offered or the reasons for them.

The "bypassing" phenomenon may also come into play; if people lack confidence in the local health institution they may ignore it, preferring when ill, to go to urban hospitals or traditional practitioners. This leads to under-utilization of health units and at the same time overburdens services such as hospitals, that should more properly be providing secondary and not primary care. Initial studies indicate the considerable importance of this phenomenon, the consequence of inadequate service quality, failure to meet the community's expectations, staff arrogance, or discrimination. Other factors may be job dissatisfaction, exhausting workloads or unrealistic staffing, and inappropriate use of staff time.

Within the communities themselves resources lie untapped, ignored by today's designers of health services. They include the indigenous systems for providing health care—traditional birth attendants, midwives, healers and others, who work on a fee-for-service basis in many developing countries among large populations and are well established but unrecognized or inadequately recognized.

(c) Restricted use of primary health workers

One of the major obstacles to the development of health services in rural areas has been the absence of clear thinking about the kind of health personnel needed to provide the necessary services at the village level. Most preventive measures and a large number of medical procedures are simple and do not require extensive professional training. In recognition of this fact, there is now a trend towards establishing a body of primary health workers who can be trained more rapidly, less expensively and in greater numbers than doctors or nurses.

It is particularly important to use them for primary care in rural areas.

Primary health workers can be recruited from among the villagers and be trained in or near the village, so that they truly belong to the people. They can be employed full-time or part-time.

However, the development of a system of primary health workers, while offering the promise of an alternative form of primary health care, may raise a new set of problems related to their selection and administration, their links with other parts of the health services, and their logistic support. For example, their generally limited basic education and short period of preparation require continuing on-the-spot training and the full support of the whole health service system. Existing health services have seldom provided training and support, nor have they wholeheartedly accepted the concept of utilization of primary health workers. Unless frontline workers have the backing of the rest of the health system, the rural populations may well reject a service that is clearly insufficient by itself.

Again, because primary health workers often work in remote areas without well developed communications and transport, it is difficult to ensure that they have the proper equipment and that patients can be easily referred to other levels of care. The remoteness of their posts also makes it more difficult to supervise and evaluate their work.

Other problems connected with the use of primary health workers are social. Traditional healers and medicine men may be antagonistic to these workers because they see them as a threat to their power and livelihood. Customs and taboos often militate against primary health workers, and problems arising from the traditional division of activities and prerogatives between the sexes also complicate the establishment of a new system.

So, although basically they may be willing to stay in the villages, primary health workers may be discouraged by the

problems they face and prefer to move to the cities and better paid jobs.

Critical importance attaches to the technical aspects of the activities of primary health workers, who form the entry point to the health system for the majority of the population. If they give the wrong treatment and do not refer patients when they should, the system will not function properly. And yet these individuals, the basic elements in the day-to-day functioning of the system, are the very ones who can receive only brief initial training. Consequently their tasks must be clearly defined and their training programmes must be efficient. The specification of tasks and the development of training programmes place a heavy burden on countries short of skilled manpower.

(d) *The rising cost of health services*

Rising costs in health care have recently been compounded by higher costs of basic commodities, fuel, and agricultural produce. The increasing cost of living, and particularly of food, is likely to aggravate the health problems of the vulnerable members of society and limit the ability of individuals and governments to pay for health services. The cost of medical programmes relying heavily on institutions and professional staff is increasing faster than that of simpler programmes. Obviously many economic factors are beyond the control of health decision-makers, but one measure well within their powers is to curb the growth of high-cost programmes and services for the few and promote low-cost services which, by using less expensive primary health care personnel, will reach a much larger proportion of the community. Such a measure must be accepted by the health establishments of all countries as a top priority and urgently needed change of direction.

Problems of the General Structure of Health Services

(a) *Lack of effective planning machinery*

Although health planning has gained increasing currency in

developing countries, for various reasons its implementation has not always been truly successful. The biggest weakness of many health planning endeavours is the lack of an overall health policy to guide them, of a political will to provide the resources necessary for implementation, and of an effective executive structure to implement the decisions. But there may be a host of other reasons for failure. Often health plans are not so designed that they can be integrated into the country's socio-economic development programmes, and planning is frequently focussed on health services and not on meeting health needs. Information and effective machinery for national health planning are often lacking. Many health administrations are without competent planners, especially at the regional level, or a planning system. The plans that are formulated are unrealistic, or not presented in terms attractive enough to appeal to the cost/benefit and cost/effectiveness minded economists of national planning bodies. This is a serious shortcoming, since planners and decision-makers tend to concentrate their attention on economic development, while social sectors, and health in particular, are relatively neglected. Another consequence is that plans are frequently directed towards intermediate objectives, some of which—prestige hospitals, training centres—are substantial and tangible but fail to achieve a change in the community's health status. Although this may seem an obvious step, the general population's needs, particularly at the local level, are not always identified before planning begins, and frequently the planning is based on statistical evidence that is either faulty or unrepresentative.

Behavioural scientists can make a considerable contribution to the planning and management of health, but their skills are little used. So, while social or psychological factors are often singled out as obstacles to solving health problems, action going beyond the admission of their importance is rare. In many cases the expectations of people, and particularly of rural people, are simply neglected, whereas they often reflect actual needs, and satisfying them would go far towards gaining acceptance for measures to meet other needs not felt, but equally or more important.

(b) *Weak development of the "total system" concept*

Health care delivery systems—public and private, national and international, curative and preventive, peripheral, intermediate and central—must be considered as a whole.

In the health services, overcentralization of authority and executive responsibility may prevent effective and adequate delivery at the periphery. It tends to lead to an overconcentration of personnel, institutions and facilities, and so to the mal-distribution of resources. Central authorities become too far removed from the bulk of the people and lose touch with community needs and expectations. Present systems of reporting seldom convey to the centre the full picture of requirements.

The integration of specialized programmes in the general health services is progressing, but slowly. While some programmes have been integrated, others remain largely autonomous. The fragmentation of a health service into disparate elements, each designed to serve a small section of the population or a single purpose, militates against the goal of comprehensive and optimal utilization of limited resources. The trend is still to develop separate services, such as those for industrial health, school health, prison health and family planning, which would be better amalgamated into a single service.

The interaction between health services in the public sector and the remainder of the health system has not been fully studied, or its importance appreciated. The non-public sector includes people and institutions with different levels of skill and resources, ranging from the specialized hospital to the private general practitioner, the pharmacist, the village midwife or even the local healer. All these services are part of the health care system, and national health authorities miss real opportunities by not taking advantage of the resources in the shape of money, manpower and local organization that already exist and can be directed towards national health goals. However, if the private sector is dominant, there is a danger that underprivileged sections of society will be deprived of essential health care, which should not depend largely

on the purchasing power of the individual. It is therefore a national responsibility to provide health care that is free, or at least within the means of the individual. Most governments recognize this responsibility, but they often fail to find an approach that would progressively build up the community's capacity to provide such care—modestly at the beginning, if limited resources so dictate, but fairly, to all their people.

Technical Weaknesses

(a) *Inadequate health education*

High morbidity and high mortality, particularly among infants and children, are an index not only of a community's low health level but also of inadequate health education. A great number of diseases could be prevented with little or no medical intervention if people were adequately informed about them and if they were encouraged to take the necessary precautions in time. Prominent among these are most childhood diseases, nutritional diseases, especially during infancy, and diseases preventable by immunization. Health education is particularly needed where the network of services is weak; there, people must learn to protect themselves from disease and to seek help if they need it.

Efforts in health education have often been limited to giving information dogmatically, as if this alone would bring about a transformation. Inevitably, the outcome has been disappointing. The pattern of existing resources—economic, human and cultural—has been forgotten, and this too has contributed to health education's failure.

A nucleus of health education specialists may be necessary to plan and guide health information activities in a country, but it is surprising how much can be done by drawing on its frequently mentioned (and as frequently ignored) human resources—the teachers, agricultural extension workers, community development agents and, depending on the culture, religious leaders, youth groups, traditional healers and so forth. There

have been many instances of their effectiveness in educating the public, especially where illiteracy is prevalent, in the simple steps it can often take to prevent dangerous diseases. A field particularly suited to their efforts is environmental health, for example, water sanitation and excreta disposal.

Health education can make a major contribution by giving people the self-respect derived from the knowledge that they can prevent disease and thus change the course of their life by their own efforts.

(b) *Lack of basic sanitation*

The quality of basic sanitation in most developing countries is well below the level considered necessary for the prevention and control of communicable diseases and the promotion and maintenance of physical, mental and social well-being. Basic sanitation should aim at safe water, a safe environment, uncontaminated food and a decent place to live. This demands good and sufficient safe water supplies, the sanitary collection and disposal of human wastes, the planning and control of urbanization, attention to proper housing, the control of pollution, food hygiene, vector control, and health education. The development of sanitation measures should be linked with economic and social development and community action. Modern concepts of basic sanitation are fairly new to many developing areas of the world. In addition, inertia permeates both the population and the officials responsible, who fail to grasp the need to initiate action. A major problem is often the lack of a competent service infrastructure to carry out a comprehensive range of functions efficiently.

A WHO survey in 91 developing countries revealed that only 29% of their total populations had access to safe drinking water at the end of 1970. In urban communities 50% of the population obtained water through individual house connections, while 19% used public standpoints. More than 85% of the rural population had no safe drinking water available to them.

Furthermore, many of the piped urban supplies functioned only intermittently, and so were potentially hazardous to health.

The immensity of the problem is illustrated by the relatively modest targets proposed for the Second United Nations Development Decade (1970-1980): to provide 60% of the total urban population with a water supply in their homes and the remaining 40% with a water supply from public standposts; to provide 27% of the urban population with sewer services; to provide 25% of the rural population with reasonable access to safe drinking water and 10% with sanitary excreta disposal facilities.

The provision of basic sanitation for rural populations is a long-term undertaking on a vast scale, one that the health authorities cannot tackle alone. Quality standards and control are traditionally the responsibility of ministries of health. Other authorities—those concerned with agriculture, public works, mining and rural engineering, for example—may be better equipped to execute water supply and sanitation projects, and more acceptable to economic planners. This again calls for a multisectoral approach and close cooperation between government ministries or departments.

(c) Deficiencies of communication and transport

Health service systems cannot operate adequately without proper communication among their various elements, including the primary health workers in the villages. In most developing countries, many of the problems in the delivery of health services to rural areas are the consequence of poor transport and communications. They include insufficient supervision of the staff, lack of consultation and referral facilities, inadequate supplies of drugs and other health requirements, feelings of isolation and neglect among the staff, and a shortage of information about needs and possibilities.

Modern transport is not easily adapted to use in the developing world; it has its own inherent problems which are more

acutely felt in countries without a technical orientation. Costs of operation are high in proportion to the countries' limited resources, technical understanding is often lacking at senior government level, and the skills to operate complicated machinery may be in short supply.

Since the late 1940s, UNICEF has given large numbers of various types of modern vehicles to support social service programmes. The delivery of these services has suffered because of failures in the transport component, and it is now recognized that if modern technical equipment is to be introduced and used in non-technically-oriented societies, guidance and training will be needed in the running of maintenance and repair services.

The 1970s have seen a more rapid increase in the cost of transportation than at any time in history, spurred by a dramatic rise in fuel prices. This increase has hit the developing countries proportionately harder than the developed countries and is now a major contributor to the rising cost of health services.

Developing countries with flying doctor services have also had to cope with many financial and technical difficulties. Moreover, these services are not usually designed to provide primary health care and appear to be effective only as a referral link where primary health care is available separately.

While many communication and transport problems may be solved by the use of two-way radio and aircraft, especially in specific conditions and for limited objectives as a component of some wider health service system, the cost per unit service is often exorbitant. Cost/benefit criteria have to be applied, the services being weighed against alternative methods of overcoming the problem of inaccessibility, including community involvement in primary health care to the point of self-sufficiency.

(d) *Lack of adequate health information*

Confusion between "statistical data" and "information" still

reigns, with the result that many statistical services fail to provide public health administrators with the information they need for sound decision-making. If national systems are to be geared to solving the real problems of communities, a radical reform of objectives and methods of data collection is required. The routine collection of data of doubtful validity or utility serves neither the decision-makers nor the community; on the contrary, it is a waste of resources that could better be spent on direct services to people. The value of routine data collection is open to question; thoughtfully and intelligently planned, periodic sample surveys or reporting by exception may often provide more useful information at lower cost.

Information services should be recast according to the priorities of the health system and should be aimed strictly at problem-solving.

ASSESSMENT

In the preceding section of this report, some aspects of what may be called conventional health services have been singled out as factors in the failure of the present systems to meet the basic health needs in developing countries. This section examines ways of dealing with those factors, in the context of some different, and apparently successful, approaches. From an analysis of the differences brought out by this comparison, a number of conclusions can be drawn.

But first we should ask a preliminary question: have the approaches described been really successful, or are they at least really promising? In the cases of China and Cuba, a definite positive answer can be given, based largely on statistical and other factual information. In other cases, the accounts are based on observational evidence, since health and vital statistics were either unavailable or not significant because of the short lives of the programmes. The study may be considered sufficiently accurate and complete to serve as a basis for general conclusions, the most important being that, despite the immense problems and the daunting economic situation, it is possible, using the resources available, to meet certain basic health needs of populations in developing countries, achieve better health care coverage, and improve the levels of health.

The Driving Force for Change

The approaches fall into two major categories. On the one hand there are programmes adopted nationally, in China, Cuba Tanzania and, to a certain extent, Venezuela; on the other, there

there are schemes covering limited areas, in Bangladesh, India, Niger and Yugoslavia. What characterizes successful national programmes is a strong political will that has transformed a practicable methodology into a national endeavour. In all the countries where this has happened, health has been given a high priority in the government's general development programme. In most cases there has been a fundamental decision to accept substantial changes instead of looking for solutions within the existing system.

Enterprise and leadership are also found in the second group of more limited schemes. Valuable lessons, both technical and operational, can be derived from this type of effort, in spite of its being confined to a limited area. In all cases, the leading role of a dedicated person can be clearly identified. There is also evidence that community leaders and organizations have given considerable support to these projects. External aid has played a part and has apparently been well used. Every effort should be made—although this is one of the most difficult factors for an international body to influence—to pick out the driving forces behind promising programmes and to help harness them to national plans.

Clear National Health Policies

In most cases changes have led to major shifts of emphasis in the health services—from a curative to a curative-preventive approach, from urban to rural populations, from the privileged to the underprivileged, and from vertical mass campaigns to a system of integrated health services forming a component of overall social and economic development.

Whenever policies to provide health care for the whole population have been put into practice, a standardized and simplified technology has been introduced for primary health care workers to follow as far as possible. Special textbooks for the training of primary health workers and manuals for use in their daily work have proved successful in several countries, for example Cuba, Niger and Venezuela.

In most cases this "deprofessionalization" of technology has been associated with the use of primary health workers with limited, task-oriented training. The frontline health care they provide has been shown to be satisfactory for specified priority health interventions, which are necessarily restricted in range. For this care to continue to be effective and serve its purpose, the health workers need periodic refresher training, supervision and technical advice, and a higher level to which to refer patients. In other words, in order to cover the entire population, the whole health system has to be reoriented to support the primary level.

The health structure has been adjusted in this way as a basic policy, although to different degrees, in all the cases studied. The variations depend on local circumstances or the methods used to carry out the programme. As an example, in Cuba, with its larger number of trained personnel, the range of primary care measures is wider than in, say, the Maradi programme in Niger. In both, however, the technology has been modified as much as proved necessary, and both involved changes in other levels of the system to support primary care.

Proper Identification of the Population's Needs and Priorities

Although it may seem elementary, the principle of identifying the population's needs and priorities is often neglected in practice. The failure to base action on these needs is often a result of lack of information or sensitivity at the central and local level. In all the cases studied, a conscious effort was made to identify health needs and the underlying causes of poor health, and importance was attached to the needs of the deprived populations (usually in the majority). Particular emphasis was placed on malnutrition and lack of water supply. The systems based on identified needs have a completely different orientation to those copied from developed countries, which often concentrate on privileged minorities. In all the cases in the study, a proper system has been created that enables the people to express their health needs.

Health and Development

The health services are only one factor contributing to the health of a population. Economic and social development activities often have a positive influence on a community's health status. Sanitation, housing, nutrition, education and communications are all important factors contributing to good health by improving the quality of life. In their absence, the gains obtainable with the disease-centred machinery of health services cannot go beyond a certain point.

The essence of a successful development programme is that it should be properly balanced. Health services should neither be too sophisticated nor lag behind other sectors in development. Good health must surely be a basic component of economic development; in turn, social and economic development contributes to good health. The relationship is not completely understood, but even partial knowledge can prevent grossly inappropriate sectoral programmes being set up.

In some cases, like China, Cuba, Tanzania, the health programme has been integrated into a general development programme. In others, it is associated with more limited measures aimed at improving the quality of life.

However, a complete change in the economic and social structure of a country is not the only path to follow. Regional programmes, as in Niger and Venezuela, have shown that less ambitious endeavours can meet basic health needs.

Community Involvement

Adequate coverage and use of preventive and curative health services at the village level have been achieved when the population takes major responsibility for primary health care in collaboration with the health services. The principle of local self-reliance implies that local contributions play an important part in providing the necessary manpower and facilities and in bringing the health services into line with the needs, wants and priorities of

the population they serve. Community involvement also means that the population participates in decision-making about its health services. Participation usually guarantees that community's motivation to accept and use the services, and feeds information on its felt needs and aspirations back to the decision-makers.

Particularly important are the untapped resources within the communities themselves: on the one hand, all the contributions that any community can provide in the shape of facilities, manpower, logistic support, and, possibly, funds; on the other, the more subtle, but equally important, contribution that people can make by joining in and using the health services. This is particularly true of preventive and protective measures—an essential aspect if the people are to derive the greatest benefit from the limited resources available and if expensive curative care and unnecessary human loss are to be reduced to a minimum.

The need to make use of all the resources available has been widely recognized. It is reflected in the common basic policy of involving the community in the responsibility for organizing, orienting, carrying out and, in some cases, financing primary health care. In China, Tanzania, the Jamkhed area in India, Savar in Bangladesh and Maradi in Niger, local involvement ranges from the selection of primary health workers from among the population to the construction and maintenance of health facilities, and help in the financing of the services through population-based payments and other support to the health workers. In many cases, bodies have been established to help to set priorities and choose between alternative programmes, for example in Jamkhed.

All the approaches employ one or more methods of gaining the understanding, cooperation and support of the population. Political methods relying on party organizations are the most common, but other techniques—for example, the use of development workers or educators—have also been shown to be possible.

Mass mobilization of the people has proved very effective, especially to achieve readily identifiable goals, such as the campaign against the five pests in China or the mass health education programmes in Tanzania or backward parts of Yugoslavia. In Cuba this method is being used to identify overall health needs and to implement community health programmes.

Reallocation of Funds and Other Resources: A More Equitable Distribution of Funds

In many countries a large proportion of the health resources is expended in a few cities for the benefit of a small proportion of the population. In successful approaches such as China's or Tanzania's this disproportion is corrected by giving priority in the allocation of funds and personnel to rural areas. In Cuba, with its large urban population, preference is given to clinics serving a large population, and to preventive work.

Forms of funding range from almost complete financing by the central government to payment of a considerable share by the community itself. In Venezuela, and in Cuba under a planned economy, the national government has been able to fund primary health care directly. In all other cases, irrespective of the political and economic system, the community has shared this responsibility to a varying degree. Case studies show that community sharing of the cost of primary health care or community inputs of other kinds should, together with community participation in the decision-making process, be considered very favourably in designing primary health care systems. Financing and decision-making are complementary functions that reinforce each other; they place the community in a position of authority as it shoulders responsibility for its own services. In countries where this is the national approach, community leaders are well aware of local health problems. They understand the role, scope and potential of their primary health care service, and they take an active interest in its management. What is more, the health institution at the level nearest to primary care is clearly more alert to the community's needs and wishes.

Manpower Development for National Health Needs

As the shortage of health personnel is one of the main factors preventing the health services from increasing their coverage of the rural areas, the possibility of training health manpower in a different way must be considered seriously. Moreover, if health staff are to be used properly, at the lowest cost, the tasks in the country's various health installations should be defined and the training geared to them. Case studies clearly demonstrate certain innovative features in different developing countries.

Primary health workers, locally recruited and supported by their communities, form the frontline of the health system and the entry point into it for the population. They are effective, acceptable and inexpensive, and they require only brief initial training. In many countries, primary health workers are assigned to such priority areas as communicable diseases, maternal and child health (including family planning), nutrition, sanitation, and curative services for minor illnesses.

Although it is easier to train health workers to perform a specific job rather than multiple tasks, primary health staff of different levels and training were effective in most of the programmes reviewed. Medical assistants, public health nurses and their auxiliaries, barefoot doctors, rural medical aides, family welfare workers and village health workers were found working in rural areas and carrying out diverse functions. At the village level, only some of these health workers were permanently available. In some countries traditional birth attendants were taught elementary skills and given enough basic knowledge to become part of the government health system.

The experience of China has shown that indigenous healers can be trained and integrated in the general health system. Indigenous systems of health care function among large populations in the developing world, and in some countries, such as India, the system is well established although unrecognized. Further integration of these indigenous practitioners—pro-

fessionals, nonprofessionals, faith healers, magic healers—into the state system calls for more research and information.

If the approach to health is multisectoral, workers from other sectors, for example community development workers or teachers, can be associated with a health programme, as in Tanzania and Jamkhed.

Supervision and in-service training are the responsibility of staff at the intermediate level, who need special understanding, knowledge and skills in order to work with and train primary health workers and indigenous practitioners. In China, in order to see local conditions and problems at first hand, the supervisory staff work in rural areas at regular intervals. Systems for the continuous training of primary health workers have been set up in China, Cuba, Venezuela and the Jamkhed project in India.

Decentralization of Planning and Administration

A central authority that merely hands decisions down to lower levels does not stimulate sufficient local participation. The planning process is inevitably changed when the local population is involved in making the decisions.

Of the countless ways of reorganizing the planning and administrative machinery, several examples are provided by case studies in developing countries. All the national alternatives exhibit the general characteristic of a national body that sets policy and decides on requests, coupled with a means of channelling information on needs and wants to it from the periphery.

The development of a decentralized system is undoubtedly one of the most difficult undertakings facing a country trying to improve its people's health. It can be reasonably argued that the result is not worth the effort and that a completely centralized system is more efficient. The best answer to the argument, though a limited one, is that the most impressive gains have been made in countries where a strong central policy has been imple-

mented by a decentralized executive organization. The degree of decentralization differs from one case to another, varying from complete managerial devolution to the community (China) to a redistribution of responsibilities within the health system accompanied by consultation with communities (Venezuela).

Examples of community participation are found in different political settings. Participation makes communities more readily mobilized, increases their health awareness, and provides health authorities with the information they need for a better and more sensitive administration.

Integration and Coordination

Two kinds of integration are evident from specific case studies. The first is the integration of the various aspects of health policy into economic and social development. Joint action is pursued with such sectors as education, agriculture, public works, housing and communications, particularly at the local level and with the participation of the community. Examples are Ivanjica in Yugoslavia, Jamkhed in India, and the Jurain applied nutrition project in Bangladesh. Tanzania, as part of its rural development policy, is consolidating the rural population into larger settlements, which makes it easier to provide primary health and other services and minimizes one of the worst problems for rural health services in many developing countries, that of distance.

The second kind of integration is the welding of the different parts of the health services into a national whole (maternal and child care, family planning, prevention of communicable diseases, nutrition, health education, etc.). This has been done, for example, in Bangladesh. The main practical feature of this type of integration is the retraining of field workers from mass campaigns for more general health purposes.

Health and Nutrition Education

In all the approaches, health education is one of the main

activities of primary health care. This understanding of the importance of health education has been responsible for a large share of the success achieved by China and promises success in other programmes. Since health education has been a deplorable failure in conventional health services, the strategy followed in these successful instances merits careful consideration.

In Savar and Jurain, Bangladesh, health education is pursued on a vast scale and also forms part of training activities in agriculture and other sectors apart from health. Associated with community participation, it has already produced a distinct change in the people's attitude to health and the health services. Family planning has also made substantial gains. In Jurain, most of the improvements in nutrition practices can be related in one way or another to the major educational drive launched there.

Success in spreading health education seems to rest on several factors. The association of development programmes with mobilization and participation of the people is in itself a most important means of stimulating health awareness in a community. Participation by the community in decision-making, if assisted by trained personnel aware of the actual and felt needs of the people, can also be a powerful force in education. In the most successful cases, the educational message was carried by workers who belonged to the community and hence enjoyed its confidence and shared the same views, aspirations and "language". The message they transmitted was generally simple and dealt with the most important problems.

Sanitation

All the programmes covered by this study emphasize the importance of providing basic sanitation for rural areas, and particularly a supply of safe water. In Tanzania, both the Government and the local authorities have given high priority to a rural water supply system, while the Jamkhed project stresses a scheme for the drilling of irrigation wells.

Ministries of health have limited scope for action in the field of sanitation, which is usually the domain of other government agencies. Many of the projects undertaken by water resource, housing and town planning agencies and ministries of agriculture and education have considerable potential for improving health that can often be realized at little additional cost if the health component is integrated into the project at the planning stage.

Major water, sewage and other sanitary engineering schemes are clearly a government responsibility, but many rural projects can be tackled by local authorities and planned and carried out by local community organizations, as has been done in China, Cuba, Tanzania, Yugoslavia and India.

Communication and Transport

Serious thought should be given to ways of delivering health services with less dependence on mechanical transport (powered by petrol or diesel fuel) than at present. Motor vehicles reserved for the exclusive use of health services are expensive to run and maintain. Public transport is often available to satisfy part of the need. In the face of constantly rising operating costs, greater use could be made of bicycles, small motorcycles and other more economical traditional forms of transport. Sharing rides will make better use of existing transport and reduce the need for extra vehicles. However, in the supervision of primary health services, quick and reliable transport is necessary to provide effective guidance and technical advice.

Modern technology offers many possibilities of improving communications. Although there have been some experiments in the application of new means of communication to rural health services, the techniques have not been fully explored. There has been a tendency to focus on some of the more expensive types of transport while other means of communication have been relatively neglected.

For example, two-way radios, forming communication links

between primary health workers in remote areas and consultants and supervisors in medical centres, appear to have promise, but their use may be limited by the initial investment required, the operating cost, and the lack of maintenance and repair facilities. Factors like these need to be taken into account when new schemes are considered.

It may be possible to make greater use, for health purposes, of communication and transport schemes developed for the police, national broadcasting or other government activities.

Summary of the Assessment

A firm national policy of providing health care for the underprivileged will involve a virtual revolution in most health service systems. It will bring about changes in the distribution of power, in the pattern of political decision-making, in the attitude and commitment of the health professionals and administrators in ministries of health and universities, and in people's awareness of what they are entitled to. To achieve such far-reaching changes, political leaders will have to shoulder the responsibility of overcoming the inertia or opposition of the health professions and other well-entrenched vested interests.

Fundamental changes in health care of this kind in the developing countries will require correspondingly far-reaching changes in the organizational structure and management practices of the health services. Such services need to be manned by a new brand of health professional with a wider social outlook, trained to respond to the actual requirements of the population. The basis and the strength of such services lie in a cadre of suitably trained primary health workers, chosen by the people from among themselves and controlled by them, rather than in a reluctant, alienated, frustrated group of bureaucrats "parachuted" into the community. The entire health service system will need to be mobilized to strengthen and support these primary health workers by providing them with training, supervision, referral facilities and logistic support, including a simplified national health technology

appropriate to their needs. Primary health services of this kind will also function in close coordination with other segments of the health services and with other services that have a bearing on the health status of the masses, such as education, agriculture, public works and social welfare.

The innovations and successes described in this study are sufficiently promising to warrant a major change in policy and direction, enabling such programmes to be fostered, extended, adapted and used as examples for a large-scale global programme.

RECOMMENDATIONS TO WHO AND UNICEF

The health care delivery systems that were taken as examples for this study show characteristics that appear to have been instrumental in leading to wider and more evenly distributed primary health care, greater satisfaction for the consumers, and more effective and more economical delivery of services. Properly adapted, these systems appear to be applicable in many political, social, economic and environmental situations.

The following recommendations are accordingly made to the governing bodies of WHO and UNICEF, although, by the nature of the subject, some of the recommendations may be considered as addressed also to governments.

- (1) WHO and UNICEF should adopt an action programme aimed at extending primary health care to populations in developing countries, particularly to those which are now inadequately provided with such care, such as rural and remote populations, slum dwellers and nomads. Since the development of primary health care services is a national undertaking that requires action at all levels, and since it is hardly feasible for all countries to introduce radical reforms, the proposed action programme should initially be selective. The criteria for selection should include one or more of the following; (i) the existence of a national decision to proceed along this path; (ii) a potential for change; or (iii) local health endeavours which could lead at a later step to national change.
- (2) The following principles in the reorientation and development of health services to achieve extensive primary care should

be adopted subject to local conditions:

- (a) primary health care services should be recognized as forming part of overall development (of urban, rural and other underserved groups), taking into account the interaction between development and health programmes;
- (b) firm policies, priorities and plans should be established for the proposed primary health services;
- (c) all other levels of the health system should be reoriented to provide support (referral, training, advisory, supervisory and logistic) to the primary health care level. Such an orientation of the health system would require active participation and training in the basic principles for all members of the health services;
- (d) communities should be involved in the designing, staffing and functioning of their local primary health care centres, and in other forms of support;
- (e) primary health care workers who have undergone simple training should be utilized;
- (f) the primary health care workers should be selected, when possible, by the community itself, or at least in consultation with the community—acceptability of such workers is, in fact, a crucial factor of success;
- (g) there should be special emphasis on (i) preventive measures; (ii) health and nutrition education; (iii) health care needs of mothers and children; (iv) utilization of simplified forms of medical and health technology; (v) association with some traditional forms of health care and use of traditional practitioners; and (vi) respect for the cultural patterns and felt needs in the health and community development of the consumers.

(3) A programme proposal such as that recommended requires a detailed awareness and understanding by all members of WHO and UNICEF staff and an organizational adaptation to respond to the new challenges. Therefore it is recommended that positive planned steps should be taken by WHO and UNICEF to inform, educate, and orient their staffs to these policies.

- (4) WHO and UNICEF should study in detail not only the innovations described in this study but also those that are occurring continuously in different parts of the world under different sponsorship; they should record and monitor them; learn from them; evaluate them; make their results widely available; assist them when necessary; adapt them; build upon them; and encourage similar endeavours, even though some may present some risk in the sense that their favourable outcome is not clearly predictable. Some of these risks can be minimized by adequate preparation and the building of a meaningful partnership with governments.
- (5) WHO and UNICEF should pursue research on the effects of rural and community development on the health of people and on the role that other sectors can play in the delivery of primary health care, develop methodology for application of the findings, and assist in its implementation.
- (6) WHO and UNICEF should encourage and support:
- (a) the adaptation of manpower planning and educational methods and techniques to situations in developing countries;
 - (b) the introduction of changes in the curricula and training of doctors, nurses and midwives to enable them to discharge their duties as envisaged in a health service system oriented towards primary health care;
 - (c) the introduction of changes in the training programmes of other health personnel to provide community orientation and inculcate the health team concept, so that such personnel become integral members of the community capable of putting the local resources available to the best use.
- (7) Within the context of national resources and plans, WHO and UNICEF should seek the definition and adaptation of medical and health technology so that primary health workers can use as much of it as possible.
- (8) WHO and UNICEF should study promising existing or

potential approaches in health education with a view to disseminating knowledge about them and sponsoring their application, so as to create health awareness in people and encourage them to become partners in the delivery of primary health care.

(9) WHO and UNICEF should study possible solutions to transport and communications difficulties in the delivery of primary health services and should encourage the implementation of promising solutions, particularly in rural areas.

(10) The comments of national health administrations should be solicited, for use in the development of plans of operations.



Breast feeding for as long as possible is encouraged for better health.
UNICEF Photo by T.S. Satyan



Training to provide health workers, teachers, social workers, etc. is needed to help mothers and children at the village level.

UNICEF Photo by T.S. Satyan



This mother and her children symbolize the targets of the many welfare services designed to improve family and community life.

UNICEF Photo by Abigail Heyman



A medical check-up is an example of preventive medicine needed at the grass roots level.

UNICEF Photo by T.S. Satyan

PART III

BASIC SERVICES FOR CHILDREN IN DEVELOPING COUNTRIES

Report by the Executive Director of UNICEF, March 1976

CONTENTS

	<i>Page</i>
Summary	75
I. Introduction and Background	78
<i>Paragraphs 1-25</i>	
Background	82
<i>Paragraphs 14-17</i>	
Principles underlying the concept of interrelated basic services	84
<i>Paragraphs 18-25</i>	
II. The need for accelerating the delivery of basic services to underserved communities and some possible approaches	88
<i>Paragraphs 26-79</i>	
The status of public health and options for remedial action	88
<i>Paragraphs 27-30</i>	
The WHO/UNICEF joint study on alternative approaches to meeting basic health needs	90
<i>Paragraphs 31-32</i>	
Safe water needed for family health and convenience	91
<i>Paragraphs 33-41</i>	
Provision of latrines	94
<i>Paragraphs 40-41</i>	

	<i>Page</i>
More support needed for responsible parenthood	94
<i>Paragraphs 42-45</i>	
Greater investment in child nutrition to secure future dividends	96
<i>Paragraphs 46-52</i>	
Activities to benefit women and girls	98
<i>Paragraphs 53-56</i>	
Village-level technology	100
<i>Paragraphs 57-59</i>	
The educational “gap”—essential learning needs and alternative approaches	101
<i>Paragraphs 60-79</i>	
Essential learning needs	104
<i>Paragraphs 67-71</i>	
Improvement of formal schooling	106
<i>Paragraphs 72-76</i>	
Other educational channels	108
<i>Paragraphs 77-78</i>	
Feedback from non-formal to formal	108
<i>Paragraph 79</i>	
III. Principles for delivery of basic services to disadvantaged communities	110
<i>Paragraphs 80-92</i>	
IV. Mobilization of national and local resources	116
<i>Paragraphs 93-95</i>	

	<i>Page</i>
V. Some examples of basic costs of sectoral activities within rural development programmes	118
<i>Paragraphs 96-112</i>	
Health services	119
<i>Paragraphs 100-105</i>	
Nutrition services	122
<i>Paragraphs 106-109</i>	
Water supply	123
<i>Paragraphs 110-111</i>	
Other activities	124
<i>Paragraph 112</i>	
VI. Identification of a target population	125
<i>Paragraphs 113-116</i>	
Target population	125
<i>Paragraphs 114-116</i>	
VII. Organizational pattern	127
<i>Paragraphs 117-128</i>	
Community level	127
<i>Paragraphs 119-120</i>	
First-referral level	128
<i>Paragraphs 121-123</i>	
The supervisory/coordinating level	129
<i>Paragraphs 124-125</i>	
The national level	130
<i>Paragraphs 126-128</i>	

	<i>Page</i>
VIII. Requirements and cost estimates	132
<i>Paragraphs 129-150</i>	
The community level	132
<i>Paragraphs 131-134</i>	
First referral level	133
<i>Paragraphs 135-137</i>	
The supervisory/coordinating level	138
<i>Paragraphs 138-142</i>	
The national level	140
<i>Paragraphs 143-144</i>	
Recapitulation of costs	141
<i>Paragraph 145</i>	
Time-table for financing the launching of basic services in rural areas	142
<i>Paragraphs 146-149</i>	
Assistance required from external resources	143
<i>Paragraph 150</i>	
IX. Provision of basic services to urban slums and shanty towns	146
<i>Paragraphs 151-158</i>	
X. A new dimension in development and a greater opportunity for international cooperation	151
<i>Paragraphs 159-161</i>	
Annex Typical items of equipment and supplies with estimated costs per community for five-years “running-in” period	153

SUMMARY

The General Assembly, in resolution 3408 (XXX), endorses the approaches to the expansion of basic services, and invites the UNICEF Executive Board to consider in depth the question of providing such services for children in the developing countries and to report, through the Economic and Social Council, to the General Assembly at its thirty-first session.

This document, which has been prepared for consideration by the Executive Board, identifies children and mothers in underserved communities in the low-income countries as the priority groups requiring urgent attention. The World Bank estimates that 700 million persons live in absolute or relative poverty in the rural areas of these countries and a further 200 million in similar condition in urban slums and shanty towns.

In addition to providing the basis for a report by the Executive Board to the General Assembly, this document represents a contribution towards wider discussion, both in the developing countries and among the international community, of the strategies and resources now required to meet the needs of the least privileged in the human family.

It is suggested that the essential human needs of children and mothers in these underserved communities could most effectively be met by developing a group of interrelated services that would include maternal and child care; family planning; provision of safe water supply and sanitation; increased production and consumption of better quality foods; measures to meet basic educational needs; simple technologies to lighten the daily

tasks of women and girls and programmes to ensure their greater participation in community affairs.

The view is expressed that the concept of interrelated basic services for underserved areas can be made practicable and effective through: the active involvement and support of the community itself continuously from the initial planning stage; the use of locally selected lay persons as village agents for delivery of routine services; and the engagement in the public services of substantial numbers of auxiliary personnel, who, by being assigned increased responsibilities, would release professional staff from conventional routines for more productive roles in direction, supervision and training. The concept, therefore, represents a direct extension to other field activities of the same basic principles and strategies that the Board approved in considering the alternative approaches to meeting basic health needs of populations in developing countries.

By way of illustration of needs, the report examines some of the "gaps" that exist in developing countries in respect of services and includes examples of reported costs of some field activities.

As a basis for suggesting how functions and responsibilities might be distributed for the development of basic services in rural areas, an organizational structure has been assumed having four operational levels, i.e., community; first referral; supervisory/coordinating; and national.

Broad estimations are made of requirements and costs, though without allowance for population growth. This quantification is done to suggest a general order of magnitude of the contributions that would be needed from external sources and from the participating countries for the provision of basic services. External assistance of the order of \$8,000 million over a period of years, and an equivalent investment by participating countries are suggested as broad approximations.

Illustrative tables suggest a pattern of implementation of field activities which are launched progressively in groups of communities. Each community would receive assistance for a period of five years and, thereafter, in cooperation with relevant local authorities and the government, be responsible for the continued maintenance of the services. Basic service activities would have been introduced into all communities by the tenth year. External assistance would be available up to the fifteenth year to provide five years support to those communities that were last entering into participation. Spread over 15 years, the average annual requirement of external assistance would thus be of the order of \$500 million.

It is emphasized that the objectives of the report are essentially:

- (a) to develop the concept of interrelated basic services;
- (b) to suggest a general order of magnitude of the resources that would be required to translate the concept into field activities;
- (c) to demonstrate the feasibility of delivering a range of services, simple in their nature, which would substantially improve the situation of children in underserved areas at a cost in external assistance which the international community could afford.

Such an undertaking would however, require action on the part of many governments, organizations, foundations and individuals. The external resources that would be required are envisaged as the aggregate of the contributions that might be made by the above-mentioned entities in accord with their respective mandates and capacities.

I. INTRODUCTION AND BACKGROUND

1. This document, presented to the Executive Board for discussion in its general debate, relates to General Assembly resolution 3408 (XXX) which, *inter alia*, invites the Board to consider in depth the question of basic services for children and to report to the General Assembly at its thirty-first session (see para. 17). The document draws attention to the urgent needs of children and mothers in rural communities and in urban slums and shanty towns in the less developed countries, and presents a case for the rapid enlargement of basic services in the interrelated fields of maternal and child care; family planning; production and consumption of more and better quality foods; nutritional rehabilitation of the most vulnerable; safe water supply and waste disposal; measures to meet the basic educational needs of the community; and the introduction of simple technologies to lighten the daily tasks of women and girls, along with special educational and social programmes designed to create greater opportunities for their participation in community affairs. Action by many governments, organizations and individuals will be required to meet these needs.
2. In outlining requirements for accelerating delivery of services to meet the minimum essential human needs, emphasis is placed on (a) active participation by the communities themselves as a *sine qua non* (b) the use of suitably trained local lay persons, part- or full-time, at the community level as primary level workers, or village agents, for delivery of routine services; and (c) the engagement in the national network of substantially increased numbers of auxiliary staff, with enlarged responsibilities, in order to release professionally qualified personnel from routines

for more productive roles as trainers, supervisors and programme directors. These auxiliaries would provide a link between the national network and the primary level workers. These organizational requirements represent an extension to other fields of activity of the principles endorsed by the Board at its 1975 session, after considering the WHO/UNICEF joint study on alternative approaches to meeting basic health needs.

3. While providing support to activities by virtue of their local knowledge, experience and skills, the participating communities would be expected to make contributions in cash or kind, the latter to include the provision of local supplies, materials and labour, the use of existing facilities such as schools, meeting halls, and the selection and remuneration of workers required to provide primary services. Representatives of the community would be invited also to assume responsibility for non-technical supervision of local activities.

4. In addition to the expenditure by national and provincial governments and other local authorities, external assistance would be required in order to launch a programme effectively in the underserved areas to which it is directed. Imported supplies and equipment, as well as cash contributions towards the costs of training and employing large numbers of auxiliary and other personnel would be needed.

5. It is not possible to formulate a set of refined estimates of requirements for the development of basic services in the low income countries because of the variety of local conditions which affect the components of a programme of this nature. The best that can be done, until specific country-by-country studies can be undertaken, is to offer some broad approximations and to suggest *an order of magnitude* of the resources required. It is, therefore, as broad approximations, not intended at this stage for budgetary purposes, but rather to provide a perspective, that estimates are presented for capital costs of equipment, supplies and construction, and for costs of training and personnel and other recurrent charges.

6. Chapter VIII offers a projection of requirements to provide basic services to a target population of 700 million—a World Bank estimate of the rural population of the developing world, living in absolute or relative poverty. A further 200 million persons live below the poverty line in shanty towns and urban slums. A rough assessment of funds needed for basic services in urban areas is also provided, again for the purpose of suggesting an *order of magnitude*.

7. The needs of the urban child are recognized as fully urgent as those of the rural child and are virtually identical—i.e., health care and nutrition, safe water, education, etc. Patterns of organization and administration will, however, vary widely between localities as will channels for delivery of services and supervisory arrangements. While the present text discusses a pattern of organization which might generally apply to the development of programmes in rural areas, no such attempt is made in respect of urban areas because of the wider variation in circumstances that can be anticipated. This will require further study.

8. To develop the essential infrastructure and provide basic services for all mothers and children among the rural and urban populations totalling 900 million in the underserved areas of the low income countries would require external assistance of the order of \$ 8,000 million over a 15-year period, i.e., an average annual input of, say, \$500 million. An equivalent investment would be required by the participating countries.

9. A programme of this nature and dimension would of necessity have to be developed gradually over a period of years. A time-frame of 10 years is suggested for the "start-up" of the programme, over which period basic services would be progressively introduced and developed in successive areas. External assistance would be limited to the initial period of five years for each operational area. Thereafter, the maintenance of activities would be the responsibility of the governments, local authorities and beneficiary communities. Assistance to areas starting up in the

tenth year would therefore extend up to the fifteenth year, the period for which external aid would be required. This implies a *minimum average annual requirement* of external assistance of approximately \$500 million—a level which it is reasonable to consider that the international community could provide.

10. It is not envisaged that this volume of external assistance would become available from any single source, or be channelled through an individual organization or limited number of agencies. Rather, it is envisaged as the aggregate of contributions that might be made by agencies and authorities who are interested in the promotion of programmes to benefit children and women in the developing world and who themselves subscribe to the concept and strategy here presented for basic services. These agencies and authorities might include bilateral donors; the World Bank and regional development banks; UNDP and UNICEF; non-governmental agencies and foundations. Technical support might be provided by the specialized agencies of the United Nations, by universities or other institutions, and by non-governmental agencies having expertise or developmental experience. These agencies and authorities might also provide financial and material assistance, depending on their mandates.

11. In presenting this report, the Executive Director wishes to acknowledge the helpful advice and assistance obtained from informal discussion and correspondence with the secretariat of WHO, FAO, UNESCO, ILO, the World Bank, representatives of non-governmental agencies and many professional persons interested in, and concerned about, the health and welfare of children in the developing world. However, UNICEF alone is responsible for the present text.

12. After Board consideration of this report, it will be given wider circulation. The main audience for the report is seen as including the various ministries in the developing countries responsible for over-all planning and the sectoral ministries concerned; institutes of development studies and schools of social

work; and all concerned assistance agencies—multilateral, bilateral, and non-governmental.

13. It is hoped that such a report would contribute to further development and broad acceptance of a more dynamic strategy for meeting the needs of the least privileged members of the human family and to more concerted action by the international community in support of interrelated basic services programmes.

Background

14. At its May 1974 session, the UNICEF Executive Board, conscious of the deterioration of the situation affecting children in many developing countries because of world economic conditions, aggravated in many instances by natural and man-made disasters, declared an emergency on behalf of children. The declaration was duly endorsed by the Economic and Social Council in resolution 1880 (LVII) and by the General Assembly in resolution 3250 (XXIX). "Special assistance" projects and contributions for specific purposes to help fund them, were authorized by the Board as part of UNICEF's own response to the declaration. In 1974 and 1975 UNICEF received special contributions in cash amounting to \$68 million and donations valued at \$29 million in the form of children's food and freight services for special assistance programmes in "most seriously affected" and "least developed countries" (E/ICEF L 1343).

15. At its May 1975 session, the Board studied, with deep concern, reports of the continuing deterioration of the situation of the child and of services for children. The Board then addressed an appeal to the General Assembly at its seventh special session to consider this situation and to adopt measures necessary for meeting children's needs, especially those most commonly considered to be the minimum basic needs of children within underserved communities in the less developed countries.

16. As necessary measures, the Board recommended the rapid enlargement of basic services in the interrelated fields described

in paragraph 1 above. The Board identified two prior conditions for the achievement of the rapid extension of such basic services to underprivileged communities, namely:

(a) a deeper commitment by the developing countries concerned to support this concept of basic services by appropriate decisions and actions; and

(b) a parallel commitment by industrialized countries and other potential contributors to provide an adequate level of external assistance bilaterally, or through the United Nations system.

17. The Board's appeal received the endorsement of both the Economic and Social Council and the General Assembly. In its resolution, the General Assembly:

1. "*Endorses* the approaches to the expansion of basic services for children set forth in the annex to the appeal of the Executive Board of the United Nations Children's Fund, entitled "basic services for children in developing countries", which embodies proposals for expanding children's services in the fields of maternal and child health, nutrition, water supply, basic education and supporting services for women, utilizing the material and human resources available in developing countries, at costs which developing countries can ultimately afford;

2. "*Urges* the developed countries and others in a position to do so, to provide, through bilateral and multilateral channels, and particularly through the United Nations Children's Fund, external assistance at a level more commensurate with the needs of developing countries, in support of the efforts of developing countries to expand their basic services for children;

3. "*Invites* the Executive Board of the United Nations Children's Fund to consider this matter in depth at its next session, and to report to the General Assembly at its thirty-first session, through the Economic and Social Council."

Principles underlying the concept of interrelated basic services

18. Experiments in rural development in various parts of the world bear testimony to the ineffectiveness of trying to find piecemeal solutions by isolating problems that are multifaceted in character. The Committee for Development Planning, established by the Economic and Social Council, draws pointed attention to this fact.¹

19. On the crucial question of increasing domestic food production and consumption, the Committee observed that no production and storage programme would itself solve the problem of malnutrition among the poorer segments of rural populations, unless other measures were taken simultaneously to improve levels of living by reducing inequalities in real income and providing more equal access to social and welfare services. The Committee emphasized the close linkage of rural progress to the availability of these public services and the contribution they made towards the whole process of development. To reinforce this point, the Committee drew attention to the symbiotic relationship between diminishing fertility and accessible social services such as maternal and child care, nutritional activities and women's education. The implication which the Committee wished to be noted in this context was that restraint in population growth was best accomplished, not as an independent, single-motive programme, but as an element of a more comprehensive, anti-poverty and social development programme.

20. The comments of the Committee lend influential support to the concept of a combination of basic services as the appropriate strategy for adoption by the international community, in programmes of assistance directed towards the poorer segments of the population in the least developed areas and countries. The end purpose of international assistance would be to encourage, and then aid, "self-help" activities by the underserved communi-

¹*Continuity and Change, Development at Mid Decade.* Department of Economic and Social Affairs (United Nations publication (Sales No. E.75.II. A. 6)).

ties in accord with the principle that it is better and more effective to do things *with* people than *for* people.

21. The proposed basic services are simple, low-cost, and intended to cater to the basic needs of a community. These are characteristics that lend support to the feasibility of their adoption as interrelated services in an action programme. They would be delivered economically at the village level through locally resident volunteers, or part-time paid workers selected by the communities themselves. Existing facilities would be used to the extent possible and supplemented as necessary, using local building materials. The locally chosen primary level workers would receive, at recurring intervals, brief training and "refresher" instruction for a limited number of specific tasks and would be provided with inexpensive supplies and simple equipment to fulfil their clearly defined and limited functions. They would act as "resource" persons within their respective communities and provide linkage between their villages and the nearest point of contact with the national extension network. The national network of district and subdivisional facilities would, in turn, provide supporting and referral services for cases and problems that could not be adequately dealt with by the primary workers.

22. Professional staff at the "referral" level would be relieved of routine service functions, which make unwarranted demands on their time, so that they might assume broader supervisory and directorial responsibilities. Additional paraprofessional personnel, (auxiliaries), would be introduced to provide, under the general supervision of the professionals, routine services, and also to give advice and guidance to the primary level workers. These principles are being increasingly applied not only in developing countries but also by the industrialized countries. In health care, the increasing use of auxiliaries is becoming a condition for making services more generally available and at lower cost. For instance, the use of midwives and enlargement of their responsibilities is increasing in New York State. In schools, the use of teachers' assistants is increasing. Sweden is using, in

some districts, a system in which the school is open on alternate weeks, in this way putting more responsibility on to the family's "self-help" activity.

23. The fundamental principle and *sine qua non* of the concept remains the willing and substantive participation of the public. Prior consultation with communities, or their representatives, would ascertain their interests, priority needs and their commitment to an appropriate programme. After general acceptance of the concept, communities would actively participate from the initial planning stage, with the conduct of programme activities. Additionally, the contribution of communities might take the form of voluntary labour and services, local materials and supplies, and cash.

24. The introduction of basic services in a country, or within a selected development zone or an administrative division is, of course, predicated on the commitment of the government of its hitherto underserved areas or communities. Such a commitment may imply, in the circumstances of the least developed countries, redeployment of budget resources in order to mobilize some measure of the total of local funds needed. Budgets at national, provincial and local authority levels may need to be reviewed to identify funds which might be released from lower priority programmes, by economies in institutional spending, or by reduction, or discontinuance of other traditional non-developmental expenditures.

25. The services to be rendered at the community level are simple and elementary in nature. Even so, they meet in large measure the common, every day needs of the family. The delivery of services would rely heavily on the use of hitherto substantially neglected, but abundantly available resources, viz. human resources. Special attention would be directed to that large fraction of the population which, in most countries, still represents a great untapped reservoir of developmental energy, potential skills and leadership—the female half of the population. A programme might therefore be described, in essence, as a

broad-based endeavour among the disadvantaged and deprived to create and organize human capital for investment in social progress. Successfully organized as a first-stage developmental operation, basic services afford prospects of progressive advancement by the rural and urban poor to improved levels of living.

II. THE NEED FOR ACCELERATING THE DELIVERY OF BASIC SERVICES TO UNDERSERVED COMMUNITIES AND SOME POSSIBLE APPROACHES

26. At midpoint in the United Nations Second Development Decade, it has to be conceded that the interests of the vast majority of women and children in the developing world have so far been poorly served. The prospects before them remain bleak, with continuing denial and deprivation of health protection, of adequate nutrition, of educational opportunity and social emancipation. This situation is likely to continue unless there comes about a change in development strategies. The following indicates some of the "gaps" that exist in vitally needed services, some possible reasons for these deficiencies and the urgent need for adjustments.

The status of public health and options for remedial action

27. In the health field over the past one and a half decades, despite notable accomplishments in the control of endemic diseases, programmes designed to benefit women and children have been limited both in their coverage and in their effect. With rapid population growth and resultant increase of young clientele, many programmes have managed little more than prevent a bad situation from becoming worse.

28. Among the reasons for the shortfall, globally, in the accomplishment of health programmes is the inadequacy of the total resources, internal and external, that have been allocated for the development of services for children and women. An equally pertinent reason is that the strategies for the delivery of health

services have in themselves been restrictive, with heavy reliance on curative institutions as the delivery channels. Major medical complexes in national or provincial capitals absorb major funds and manpower, with the consequence of much being done for the urban few in the modernized sector and relatively little for the rural many. In developing countries, maldistribution of services, like maldistribution of income, reinforces the deprivation of the majority of the population.

29. A convention to which many countries still adhere is that of restricting to their professional cadres—i.e. doctors, nurses and midwives—the responsibility for providing even the most simple forms of health care. There is thus uneconomic use of scarce professional competence. Such narrow yet pervasive conviction about the delivery of services is a monopolistic barrier to broader actions about health. The shortage of qualified doctors in many countries implies that the population at large must continue to suffer if health care is maintained as the exclusive responsibility of professional personnel, admitting of no alternative agents of delivery. Dr. N.R.E. Fendall has expressed these views:

“If I were asked to compose an epitaph on medicine throughout the twentieth century, it would read: brilliant in its discoveries, superb in its technological break-through, but woefully inept in its application to those most in need. Medicine will be judged, not on its vast and rapid accumulation of knowledge per se, but on its trusteeship of that knowledge. We are now experienced, and all that remains is the problem of translating what is common knowledge and routine medicine, and hence practice, to the other two-thirds of the world. The implementation gap must be closed.”²

30. The “implementation gap” is suggested by the following now commonly quoted estimates below. (Statistics such as these may be as much an understatement as an exaggeration. They

² See “The Role of Frontline Workers” WHO Chronicle, Vol. 29, No. 1, (Jan. 1975).

provide, however, an "order of magnitude" for acceptance until substantive data are available.)

- (i) Less than 10 per cent (203 million) of the rural population of developing countries, (2,032 million), is within walking distance, (10 km), of a national health facility of any kind;
- (ii) A WHO study of 91 less developed countries indicated that 85 per cent of the rural population has no access to safe drinking water;
- (iii) WHO sources estimate that 3 per cent, or approximately 10 million, of children under five years in developing countries suffer from severe protein/calorie malnutrition and a further 80 million from moderate level malnutrition;³
- (iv) Nutritional deficiency diseases⁴ afflict large numbers of persons: goitre 400 million; anaemia 300 million; xerophthalmia 100 million.

It is self-evident that health expenditures, disproportionately concentrated at a few locations, such as better-off urban areas, can make no appreciable difference on morbidity and mortality rates for any country as a whole. To achieve widespread effect on health standards there needs to be widespread distribution of resources—the case of some for all rather than all for some. The attainment of greater equality implies a substantial increase in the numbers of agents for the delivery of health services.

The WHO/UNICEF joint study on alternative approaches to meeting basic health needs

31. The WHO/UNICEF joint study on alternative approaches to meeting the basic health needs of populations in developing

³ "The State of World Nutrition" (NUTR/73.1), WHO.

⁴ Many of the same persons would be suffering from anaemia and other nutritional deficiencies: the total therefore, should not be added. See "The World Food Problem", (E/CONF/65/4, paras. 502-504), United Nations World Food Conference.

countries (document E/ICEF/L. 1322) points towards possible ways out of the present dilemma. The UNICEF Executive Board and the World Health Assembly at their respective 1975 sessions endorsed the recommendations of the Joint Health Policy Committee arising from this study.

32. The following were included among the recommendations for the reorientation and development of health services to achieve extensive primary care:

- (a) Communities should be involved in the design, staffing, functioning, and support of their local primary health care centres;
- (b) Primary health care workers who have undergone simple training should be used;
- (c) The primary health care workers should be selected, when possible, by the community itself, or at least in consultation with the community—acceptability of such workers is in fact a crucial factor of success;
- (d) There should be special emphasis on (i) preventive measures; (ii) health and nutrition education; (iii) health care needs of mothers and children; (iv) use of simplified forms of medical and health technology; (v) association with some traditional forms of health care and use of traditional practitioners; and (vi) respect for the cultural and felt needs in health and community development of the consumers.

Safe water needed for family health and convenience

33. WHO considers that the provision of a safe and convenient water supply is the single most important step that can be taken to improve the health of children living in rural areas. Diseases such as diarrhoea, amoebic dysentery, typhoid and paratyphoid fever are among the main causes of sickness and death in the developing countries. In a number of countries diarrhoea is the chief factor in infant and young child mortality. Safe water

for drinking and for better personal and household hygiene can significantly reduce the incidence of these diseases.

34. The impact of safe water on endemic diseases is attended to in a report submitted in 1962 by the Government of Japan to WHO.⁵ The Government reported that a survey of 30 rural areas showed that, following the installation of safe water supplies, the number of cases of intestinal diseases in those areas was reduced, on average, by 71.5 per cent and trachoma by 64 per cent. The death rate of infants and young children fell by 51.7 per cent.

35. It is estimated that over 1,000 million people in rural areas do not have adequate supplies of safe water and that the rate at which it is being provided fails to keep pace with population growth. The following table indicates for 1970, the rural population, by region, without reasonable access to safe water.

TABLE 1. Rural population without access to safe water⁶

<i>Region</i>	<i>Rural population (millions)</i>
Africa	135
Latin America and Caribbean	89
Eastern Mediterranean	138
South East Asia	632
Western Pacific	59
<hr/>	
<i>Total</i>	1,076
<hr/>	

36. Clean water is essential, not for drinking alone, but also for personal hygiene and general domestic use. It should be

⁵ *Urban Water Supply and Needs in Seventy-Five Developing Countries*, WHO Public Health Papers, No. 23 (Geneva, 1963).

⁶ C.S. Pineo and D.V. Subrahmanyam, *Community Water Supply and Excreta Disposal Situation in the Developing Countries* (WHO, Geneva, 1975). These estimates were obtained by deducting rural population with reasonable access to safe water from local rural population.

available in adequate quantities to serve these purposes. A conveniently available safe water supply could be a major factor in reducing the daily drudgery of the housewife, conserving her strength and her time for more attention to the other needs of her children and home. Clean water contributes to improvement of the quality of life by the protection it offers against dirt and disease.

37. The goals set by the United Nations for the global improvement of water supply in the Second Development Decade are to provide safe water to 100 per cent of urban population and to 25 per cent of rural population within this period. For the rural areas, this modest goal implies the extension of safe water from an estimated 140 million people already covered to an additional 273 million. Projections of population growth to 1980 suggest that, even if the United Nations goal is reached within the period, there will be more rural people still without safe water in 1980 than there are today.⁷ The inevitable consequence will be the continuing high incidence of diseases relating to lack of hygiene and continuing high curative service. On humanitarian grounds alone, apart from all other considerations, increased emphasis needs to be placed on rural water supply.

38. There are a number of prerequisites for the organization of effective large-scale rural water supply programmes. It is essential (a) that governments be firmly committed to rural water policies; (b) that existing national institutions and infrastructures be strengthened; (c) that training of manpower for all levels of operation and maintenance be planned; and (d) that the public be educated to appreciate the advantages of safe water and motivated to contribute in appropriate ways to the installation and maintenance of supply systems.

39. A matter of special importance is the siting of safe water supplies. They need to be located within reasonable distance of the households they are intended to serve, otherwise, there is

⁷ *Ibid.*

the danger of families reverting to the use of unsafe water which may be more conveniently accessible.

Provision of latrines

40. To reinforce the effort to safeguard health and improve living conditions as intended with the provision of safe water supply, it is also necessary to ensure the proper disposal of human waste. Latrines afford a low-cost method for disposal in uncongested areas. Dug-pit latrines are not expensive but in certain soils, bore-hole latrines constructed by use of a hand auger may be quicker and cheaper to install. They should be provided on a household basis, especially for the convenience of women, and for assurance of proper care. Community latrines, while they may serve at places of public assembly, such as markets or places of worship, have in general not proved satisfactory in terms of care and maintenance as have facilities provided for family use.

41. The provision of safe water and household latrines should be seen as integral parts of health care and as important elements among those basic services necessary for the improvement of standards of living.

More support needed for responsible parenthood

42. The "quality of life" is what responsible parenthood is all about. In many of the poorer countries high birth rates are associated with high mortality. Frequent pregnancies occur in a household because couples, uncertain of the survival of any child, are inclined, as a safeguard, towards increasing their family size. The survival of at least one male child or more to adulthood is the parents' main prospect of security in old age.

43. At the family level frequent pregnancies overburden and exhaust the mother, handicap the older children and overstrain the family resources. With too many tasks to fulfil, the mother is unable to give all her children the care and attention each needs. Frequently, for lack of knowledge she does not appre-

ciate how some of the basic needs of her children may be met, for example, in weaning, or in hygienic habits such as might prevent disease.

44. At the country level a rapidly increasing population of young children renders even more inadequate such services as may exist for their welfare—in health, education and social protection—and requires a considerable level of investment to maintain the existing insufficient ratio of services to population. Supporting services must be available for any programme to encourage responsible parenthood. These services would include mother and child care, nutrition, education, and such measures of protection as hold promise of the healthy development of children that are born. Basic services incorporate these supporting elements and also provide a means, at the village level, for delivery of family planning services in terms of nonclinical supplies and basic information. Further guidance and supervision is provided through referral services. Family planning relates not merely to the regulation of the number of children born, but to the spacing and timing of births so that children are conceived at least risk to the mother's life and health, are wanted and can be adequately cared for.

45. To encourage responsible parenthood there is need of a major educational effort, shaped to accord with local circumstances, which would motivate couples to plan their families. This motivational effort would include the topic of family life education in schools, colleges, training institutions, clubs and co-operative services, and wherever adolescents can be contacted. Advocacy of family planning should be a regular function of all personnel in extension services in contact with the public. Those engaged in such sectors as health, social welfare, education and community development have special opportunities for effective education of the public. This task, however, should be shared by as many members as possible of formal and informal, official and non-governmental agencies and channels.

Greater investment in child nutrition to secure future dividends

46. Malnutrition is a common phenomenon in the less developed countries, especially among children and women. There is considerable variance of opinion as to prevalence rates. This is due to the paucity of data. One projection, based on a number of point-prevalence studies, estimates 3 per cent of children under five years, (approximately 10 million), suffer severe protein-calorie malnutrition, while another 80 million suffer moderate malnutrition. The high rates of infant and young child deaths in these countries are, in large measure, attributable directly or indirectly to malnutrition. Infants may die because of their undernourished and anaemic mothers' inability to provide the breast milk essential to their survival or by being too soon replaced at the breast by another sibling.

47. In many countries, deaths under five years of age may equal 50 per cent of total deaths. Studies in Chile, Colombia, Guatemala, Indonesia and Mexico suggest that malnutrition, with the related apathy and lack of stimulation felt by young children, may retard the development of the brain and interfere with their learning capacity and behaviour in later years. Some of the effects of malnutrition are thought to be irreversible; most of the others, in practice, will never be reversed because of the costs involved. Among the irreversible are keratomalacia, a disease of the eye arising from lack of vitamin A, leading to blindness, and rickets, a disease of the skeletal system resulting in crippling due to lack of calcium salts and vitamin D. The lack of iodine in the diet induces goitre, a debilitating disease of the thyroid gland, and is also responsible for cretinism, a condition of body malformation combined with mental retardation. A malnourished child, marginally surviving to adulthood, is likely to burden rather than contribute productively to his community—and this for no fault of his own.

48. With malnutrition responsible for such catastrophies, the problem needs to be tackled much more vigorously than hitherto. Many of the developing countries have national agricultural policies; few have national food and nutrition policies. The

former usually aims at increasing production of staples, cash and export crops, but such policies do not necessarily spread the benefits of increased productivity to those most in need. To accomplish the latter, there must be a programme directed specifically to improve welfare by reducing deprivation—in this context, a specific nutrition programme as an integral part of any general rural development plan. Conservatism is strong in food habits and the observance of taboos widespread. Ignorance of food values is another factor which makes a vigorous programme to educate the public essential to achieving any change in food habits. There would, of course, be other implications to improving national nutrition standards, such as pricing policies and the availability of the necessary inputs for improved food production.

49. While the formulation of a national nutrition policy is a desired goal needing to be constantly advocated, it is not at all necessary to await the framing of such a policy at the national level before initiating practical actions at the local level to improve standards of nutrition. Successful demonstration frequently accelerates and contributes to the determination of policy. Nutrition education and practical nutrition activities, therefore constitute important elements of basic services that are necessary to improve the lot of the disadvantaged rural communities. What, in essence, is required is increased local production and consumption of better quality foods—of vegetables, particularly legumes, fruits, poultry, dairy products and fish, accompanied by continuing nutrition education to improve traditional food habits and also to achieve public recognition and appreciation of the special food needs of young children and expectant and nursing mothers. The importance of breastfeeding of infants should receive special emphasis in all nutrition education activities.

50. While the longer term objective should be local self-sufficiency in food, it may be necessary to deal with the more serious cases of malnutrition among children and women through special feeding programmes. For this, quantities of food would

be required which, if not obtainable within the country, would need to be imported. Because of food costs and the problems of organization, programmes for the treatment and supplementary feeding of the malnourished would therefore be limited and would be possible only on a highly selective basis, restricted to the most needy cases.

51. Many developing countries have some system of agricultural and home economics extension, or include these subjects under more general programmes for rural and community development. Most will require strengthening if they are to reach out effectively to the periphery. The shortage of professional personnel is frequently given as the reason for present limited service. This might be overcome by the employment, as extensionists, of increased numbers of paraprofessionals on the pattern of paramedicals and auxiliaries in the health field. With suitable training, such extensionists should be adequate for the job of disseminating knowledge of simple, improved practices including dietary habits and techniques for better home management in the villages. Major attention would be given to cultivating better food crops and encouraging better food preparation and preservation with special attention to the food needs of infants.

52. At the village level, suitable persons—the equivalent of “good farmers” and “capable” housewives—might be selected by the community as their village agents or primary level workers. Basic services would provide for the training and support of these and other personnel necessary to extend assistance to the periphery.

Activities to benefit women and girls

53. In traditional societies, women and girls suffer many disabilities. A typical rural woman's role is to bear and nurse children, to manage the household and feed the family, to fetch water and gather fuel, to help in the fields in season and to winnow, grind, pound or press cereal and seed crops after harvest. Hers

is the responsibility for the kitchen garden, if there be one, and for tending small animals. The quality of the family diet depends substantially upon her resources and resourcefulness. It is she who may attend the local market for purchases or for sale of any small surpluses the family may have. It is she who provides what care she knows when sickness occurs and who seeks out the traditional healer or trudges to the distant dispensary when she recognizes the seriousness of the affliction of any family member. Girls from an early age are destined to share with their mothers this day-long, year-round drudgery.

54. Though they fulfil an important role in a rural economy and are a primary influence on the development of their children, women, for the most part, are excluded from formal decision-making with regard to their community. In most traditional societies, community affairs remain the prerogative of the male.

55. Failure to associate communities with the planning of programmes intended for their benefit, with consequent lack of public participation in the implementation of programmes, is now recognized as a missing link in the strategies for development so far applied and a major reason for the shortfall in the achievement of targets. The great and puzzling question is, can the appropriate forms of social organization and the necessary degree of political support be found for the adoption of new strategies and alternative approaches to development? A conscious effort has now to be made to motivate and actively engage communities in a new developmental effort. This implies new styles of planning, changes in traditional procedures, new roles and new participants in the planning process.

56. From the outset, any movement in new directions should provide adequately for the participation of women, should recognize their special needs, should provide services to ameliorate their common conditions and reduce their heavy labour and thereby increase their opportunities for more productive roles within the family and community. For these reasons, basic

services should provide for the protection as well as the social emancipation of women and girls. Accessible primary health care, improved nutrition and family planning facilities within the community would assist in this regard and would reduce unnecessary suffering as well as the frequency of pregnancies. With an accessible water supply, the time and physical energy saved can then be devoted to better home and child care, gardening or other pursuits. Time needs also to be conserved so that females have the opportunity of participating in social gatherings for non-formal education and cultural and recreational purposes.

Village-level technology

57. Greater interest in village-level technology has become apparent in many developing countries, stemming from problems related to the world economic crisis with its manifestations of increased prices of fertilizer, fuel and food, combined with the local problems of unemployment and underemployment and the drift of people from rural to urban areas. Village-level technology may best be introduced as one facet of village development activities envisaged as basic services. Concepts of village-level technology should represent a development of the traditional culture and life style of the people concerned. A main objective would be to use locally available material, skills and resources to develop a comparatively low-cost technology, appropriate for application in the given circumstances.

58. The introduction of simple technologies and the teaching of new home management techniques can have numerous direct benefits. These techniques might include the improvement of implements and the replacement of traditional appliances by easier to operate and more efficient means for de-husking, grinding or pressing grains and oil seeds. Improved extraction processes would increase the production of oil and leave protein-rich cake in the villages for domestic use. Wind power might be harnessed for pumping water, and for small-scale production of electricity. Improved methods of solar drying and

crop storage would lead to better conservation of food and mainenance of quality. Simple devices for cooking would save fuel while others designed for transporting heavy loads would relieve a burden that frequently falls to the women in a family.

59. Cottage crafts could provide aesthetic as well as small economic benefits, while some methods and technologies could be applied on a community basis, thus reducing individual workloads by sharing. Successful village-level technological improvements of the types discussed, are likely to have direct beneficial impact on women and girls by reason of their existing roles and responsibilities.

The educational "gap"—essential learning needs and alternative approaches

60. Just as in matters of health care, nutrition, water supply and other basic services and amenities, millions of people in the developing world are deprived or underserved, so also are they disadvantaged or denied in respect of education. The education systems of many countries continue with inculcating conventional knowledge and preparing students for limited, stereotyped functions. Millions of children emerge from schools ill-adapted to their environment and possessing neither the training nor the skills required to meet the development needs of their countries. In many countries, more than 40 per cent of the total resources available for education are used as if their sole purpose was still to prepare a small, intensively trained elite for the country's modern economic sector. The priorities asserted by urban areas tend to reduce the resources directed to education in rural areas. These are striking anomalies considering that the economies of developing countries are predominately agricultural and nearly 80 per cent of the population is rural. Levels of literacy and ratios of first year school enrolment in a number of developing countries provide some measure of the "educational gap" that needs to be filled.

TABLE 2. Levels of literacy and ratios of first year school enrolment⁸

<i>Country</i>	<i>Literacy %</i>	<i>School enrolment ratio (First year)</i>
Bangladesh	23	56
Chad	7	33
Democratic Yemen	10	70
Ethiopia	7	17
Guatemala	38	43
Mali	10	18
Senegal	10	38
Somalia	5	13
Sudan	15	38

61. School enrolment ratios attest to the deprivation experienced by developing countries. Of an estimated 435 million children of the 7-12 years age group in the less developed countries, approximately 201 million were enrolled in primary schools in 1970, i.e. less than 50 per cent.⁹ In several of the least developed countries and the more backward areas of some others, only one sixth to one third of the children of primary school age were enrolled. These low enrolments can safely be attributed to poverty and to the paucity of facilities available to the majority in the rural areas.

62. A phenomenon general to the primary system in these countries is the large number of drop-outs in the initial year. This is variously attributed to the family's inability to continue to clothe and equip the child for school or to circumstances requiring the child's help at home or in the fields. Additional causes of drop-out may be the uninteresting content of the curriculum, ineffective methods of teaching and overall, the irrelevance of what was taught to the pupils' environment and family lifestyle.

⁸ *Education*, World Bank Sector Working Paper, December 1974, table 3, pp. 18-19.

⁹ *Ibid.*, Annex

63. Data from three countries of Latin America indicate, as a percentage of total primary admissions, those who completed their primary education and by inference, those who dropped out. The data reveal a most serious situation in the rural areas.

TABLE 3. Successful completers in primary education as a percentage of enrolment

	Total country	Urban	Rural
Colombia	27.3	47.3	3.7
Dominican Republic	30.4	48.1	13.9
Guatemala	25.4	49.6	3.5

64. The Second Development Decade saw some beginnings with re-examination of national education systems and priorities. Several countries began the process of modernizing the curriculum and reorienting teacher training. Enrolments increased in those countries with relatively higher per capita GNP, confirming the natural aspiration of parents for an education for their children, where facilities were available and where they were able to meet direct and indirect costs. The "International Classification of Educational Statistics, 1971" indicated for Asia and Africa an increase over the previous year of 1.6 per cent in primary school enrolment. At the same time, however, it noted a 3 per cent increase in the 0-9 year old population. The difference in these percentages implies an increase in the number of persons who may reach adulthood, still illiterate. This is a forbidding prospect unless educational facilities along with other essential supportive elements of development are forthcoming.

65. For example, the World Bank, drawing on UNESCO estimates, projects for 1985, more school-aged children out of school (375 million), than in school (350 million). The comparative totals for 1970 were: out of school, 269 million; in school, 212 million. Increasing illiteracy can therefore be apprehended and with it, increased deprivation and denial of development. Again, the World Bank estimates that illiterates above 15 years of age in developing countries may number 865 million by 1985. It would be unconscionable of the international community to

ignore this prospect and to accept as inevitable an irreversibly worsening fate as the predestined lot of hundreds of millions of its already underprivileged fellows.

66. For countries to expand and develop their formal school systems to meet the educational requirements of *all* children, massive investment, innovative concepts and an expanse of time are required. This should be the national long-term goal. In the meantime, however, because of prevailing deprivation, and to prevent its acerbation, special efforts are needed to provide some learning opportunities for children who are not at school for one or a variety of reasons. Thus, an educational opportunity, adapted to local needs, should be an integral part of the basic services to be delivered, in the shortest possible time, to benefit the least privileged in the less developed countries. As in the case of other services, a strategy for extending learning opportunities to out-of-school children and other disadvantaged groups in the poorer countries would have the best chance of success if there is local participation in the planning of proposed activities and if the interventions are kept simple.

Essential learning needs

67. Recent discussions among the international educational community, concerning basic concepts of education, suggest some strategies for meeting the minimal educational needs of children in disadvantaged areas. These discussions stress the need for viewing education as a lifelong learning process,¹¹ emphasize that basic education is not limited to formal schooling¹² and discuss measures for the provision over the next two decades of at least minimum levels of elementary or basic education to fill the educational gap.¹³

¹¹ Edgar Faure *et al.*, *Learning To Be*. Jointly published by UNESCO, Paris and Harrap, London, 1972.

¹² Philip H. Coombs with Boy C. Prosser and Manzoor Ahmed, Barbara Baird Israel, ed., *New Paths to Learning for Rural Children and Youth*. Prepared for UNICEF by the International Council for Educational Development.

¹³ H.M. Phillips, *Basic Education: A World Challenge* (London, John Wiley and Sons, 1975).

68. The definition of minimal essential learning needs varies from country to country depending on local circumstances. The following elements are merely illustrative of a "minimum package":

- (a) functional literacy and numeracy to enable persons to have access to sources of knowledges which they personally might find useful, such as simple agricultural productivity, and provide family protection; to be able to write legibly and give comprehensible expression to thoughts and needs; and to handle common computations that are important, e.g. measurement of land and buildings, calculation of agricultural input costs, sales, revenues and interest charges;
- (b) an elementary understanding of the processes of nature in the particular area, as they pertain, for example, to raising crops and animals, to nutrition and food conservation and to the environment and its protection;
- (c) knowledge and skill to develop self-reliance and for raising a family and operating a household, including the essential elements of good child care and family planning where appropriate; sanitation and nutrition; and the preparing of food for family consumption;
- (d) knowledge of the social environment to allow constructive participation in community affairs.

Each element should stimulate curiosity and provide training and experience in "how to learn" in support of a life-long learning process.

69. Viewing education *functionally*, that is in terms of essential learning needs, instead of *institutionally* (through level of schooling), enhances the prospect of identifying wider opportunities for educating disadvantaged children. Education in this context is based on a combination of learning activities which may occur in schools, at home, in the market place, or elsewhere, in scheduled or unscheduled classes. This functional

approach also provides greater opportunities for reaching disadvantaged children through a larger number of mediators in learning.

70. In the fields of health and agriculture, the extension of services to the periphery may be done through auxiliaries, a category that already exists in many countries. These cadres operate under the direction and supervision of professionally qualified staff. In the education field, there appears to be no very closely analogous category of personnel for use as extension agents, though many countries, short of professionally trained teachers, employ "monitors" for certain limited educational tasks and others employ auxiliaries for teaching literacy. For the most part, in order to meet the basic educational needs of deprived communities, it would be necessary, while making maximum use of available teachers, to identify other persons who could provide some assistance. An immediate possibility would be to use for this purpose, on a part-time basis, the auxiliaries available from the health, agriculture and other sectors, each to contribute according to his particular field of knowledge and experience.

71. These auxiliaries would increase the number of available educators as additional persons are recruited into these services. Local artisans, successful farmers and housewives, religious leaders and other socially active members of the community might also be called upon.

Improvement of formal schooling

72. In some countries, the formal school system would provide the easiest point for initiating action aimed at meeting the minimum essential learning needs of disadvantaged children. Existing schools might be used to serve more children. This might be done, for example, by keeping schools open longer—more hours per day and more days per year—with additional teachers to match the workload; or by admitting particular groups of children to the schools in alternate weeks. In certain areas

existing school buildings might be extended and staff increased, while elsewhere, with no school available within reasonable distance, it would be necessary to establish a primary school.

73. Some countries seek to extend the opportunities for formal education through the system of "godfather" schools, as in Tamil Nadu (India), or the "nuclear", or "consolidated" schools of Latin America. These systems group smaller village schools, offering a limited range of instruction, under others which offer the full cycle.¹⁴ They involve certain practical problems such as selecting children from the satellite schools and housing them at the central school. There is, as yet, little published material on how and to what extent these problems have been overcome. But the system represents an interesting attempt at broadening the opportunity for formal education.

74. Turkey, under a programme for agrarian reform, aims at improving its rural infrastructure by developing and strengthening public service facilities at a number of "key" or "central" villages. Along with health services and rural credit facilities, etc., this scheme includes the establishment of schools which serve the central villages and children from scattered hamlets in the area.

75. Sierra Leone, jointly assisted by UNDP, UNESCO and UNICEF, has embarked on a project in rural community education. The course of study offered at 20 teachers' training colleges, which are located in the rural areas, has been oriented to the needs of the community and environment. The objective is to convert these colleges into community centres and to qualify trainees for leadership roles in future rural development. A similar orientation of education is under way in Mali.

76. Poorer countries of the developing world may find it impossible to develop an education programme that would tackle several learning needs simultaneously. It might become necessary to start with priority needs, the development of income-earn-

¹⁴ Phillips, *op. cit.*, chapter 10.

ing skills for example, or concentration on an especially disadvantaged group such as adolescent girls. In other circumstances, however, schools might well be turned into community learning centres.

Other educational channels

77. Apart from schools, there are various activities and services at the village level which incorporate a strong education component. Basic health service programmes, for instance, should impart functional knowledge about protecting family health, responsible parenthood, child care, nutrition and improved sanitation. Agricultural extension programmes directed to "functional skills for earning a living", also provide an opportunity through practical demonstrations in raising crops and animals, and an elementary understanding of natural processes including human nutrition as well as that of animals and plants. Extension programmes may impart skills required for raising a family and managing a household.

78. The process of education would naturally not be limited to indoors. Much could be done in the open air, as most village affairs are conducted, and in the fields, as would be most appropriate to the needs of cultivators. The strategy would be to explore the "potentials", human and material, within a community, and use and develop them. A major implication of these suggested approaches to meeting basic learning needs is the great demand that can be anticipated for training local persons in simple teaching skills. There would also be demand for the preparation and supply of suitable teaching aids and for the maintenance of acquired skills, such as literacy. The experience of national authorities and local institutions, non-governmental organizations and international agencies would be drawn on to assist in this regard.

Feedback from non-formal to formal

79. The development of non-formal education activities in a

community might suggest ideas and teaching content that are suitable for absorption into local primary school practice. This should be encouraged and local schools should be appropriately assisted in these and other steps towards improving and making more relevant to life the education they impart. Ideally, the "remedial" effort to meet minimum essential learning needs should be linked to the national education system by appropriate "ladders and bridges"¹⁵ so as to enlarge the prospects and opportunities for education of the presently disadvantaged child.

¹⁵ *Ibid.*

III. PRINCIPLES FOR DELIVERY OF BASIC SERVICES TO DISADVANTAGED COMMUNITIES

80. Chapter II provided some broad indications of the character and extent of the deprivation suffered by large sectors of the population of the developing world. It also identified some priority needs and referred in general terms to the interrelated basic services and elementary amenities to be provided if these needs are to be met. Chapter III defines some of the basic principles that should underlie a programme for delivery of basic services to disadvantaged communities. The term "disadvantaged communities", as previously noted, may apply to a particular country as a whole, to specific zones, or areas, or specific social groups within a given country.

81. Public participation is the vital force in social development. It is a resource that needs to be harnessed to the process of development planning from the outset. Regrettably, it is a commonly neglected factor. Various reasons for this neglect may be adduced, among them the highly centralized procedures that characterize the formulation of national plans and programmes in most developing countries; the paternalistic attitudes of some regimes; and the problems implicit for already overburdened administrators in the social engineering necessary to securing the active participation of communities in officially sponsored development programmes. Yet, the question remains: is the absence of public participation a "missing-link" in development? There is growing conviction that it is.

82. The presently contemplated basic services programme rests squarely on the principle of community participation in the

planning of programmes, the active involvement of communities in programme execution and their making an appropriate contribution toward the required inputs. In the less developed countries, the sectoral national services—health, water supply, social welfare, education, agricultural extension—fall far short of providing adequate population coverage. The major objective of basic services is to assist those communities, as yet unserved or inadequately served, in establishing a simple, economical pattern of “primary” or “frontline” services for themselves, relating to the above mentioned or other priority fields of developmental activity.

83. The organizational pattern may vary between countries and between regions within countries, reflecting the expressed priority needs of different communities and environments. The common feature will be that, through the locally chosen primary level workers, all communities would have ready access to advice, guidance and assistance, from persons with whom they are familiar and socially at ease. Appropriately trained for a limited number of specific tasks, with regular refresher training, and supported and supervised by a referral service, these primary level workers can be expected to provide useful services, with wide population coverage, at low cost.

84. The persons selected by a community as primary workers, whether or not the individuals have any formal education, should be intelligent and possess some qualities of enterprise and leadership. Recognized skills or experience may be a factor in selection. They might be part-time or full-time workers, male or female, paid or unpaid and be multipurpose to varying degrees. These are matters for local decision. Existing “operators” within the community, such as traditional midwives and healers and dispensers; progressive farmers, successful housewives or craftsmen; as well as religious leaders and other socially active persons, could be possible recruits as agents for delivering to their communities, some of the basic services envisaged.

85. The programme envisages interrelated services to meet a variety of minimum basic needs. For very practical reasons,

all the elements of the programme may not be delivered at one and the same time at a given location. There might be progressive developments of different services leading to the eventual convergence of all the required services at a particular locale. The process can be envisaged as one of gradualism. However, because of their interdependence, the various services should be developed in each location over as short a time span as possible to obtain optimum benefit. Planning authorities might ensure this outcome by establishing appropriate time schedules.

86. It perhaps needs to be stressed that primary level workers and their community-oriented activities are *not* conceived as a *replacement* of the national network of services. On the contrary, they are to be viewed as providing a platform from which hitherto deprived communities, while practicing "self-help", can propel themselves upwards into contact with the referral services.

87. The appropriate field establishments of the ministries of health, education, agriculture, social welfare, rural development etc., located nearest to a community might provide the training, supervision, referral and logistical services necessary in support of the primary level workers. This requirement has several implications. It implies a substantially different and increased workload for the staff of these establishments which are to provide referral services. Personnel already in position would require training to reorient them to their changed functions. New recruits would need appropriate pre-service training. Some expansion of professional staff would be necessary along with major expansion of auxiliary staff. In certain areas, in order to bring referral services within reasonable distance of communities, it would be necessary to establish new centres, or offices of the "district" type.

88. The content of the programme should reflect what the community considers its priority needs. It is assumed, however that the most deprived communities in the developing countries would have many needs in common even though they may vary in their assignment of priorities. In general, the nature of

the tasks of primary level workers would be:

- (a) to perform first aid and primary health care, including: treatment of diarrhoeas, coughs, colds, minor fevers and skin conditions; distribution of anti-malarials and vitamin capsules and follow-up on domiciliary treatment of patients with tuberculosis, leprosy, or of other patients as prescribed by a referral institution; assistance with deliveries and mother and child care; non-medical family planning services; health and nutrition education and selective supplementary feeding of the malnourished among the vulnerable groups; village water supply maintenance and sanitation; mobilization of the community for immunization by visiting health technicians; referral of patients to the appropriate point in the national network;
- (b) to encourage better agricultural practices and develop domestic and community gardens; nutrition education; improvement of local irrigation and drainage; composting and use of fertilizers; improved food storage and preservation; raising of small animals and simple veterinary treatment; introduction of simple technologies including domestic and communal facilities to conserve local resources and to reduce the hard labour and drudgery to which women are commonly subjected;
- (c) to extend and diversify use of schooling facilities, literacy training and non-formal education including organization of youth clubs, cultural groups, classes and forums to encourage traditional arts, crafts, entertainment and sports; and organization of special activities for women and girls to encourage their greater participation in community affairs.

89. This pattern of interrelated activities, based on the principle of community participation and the use of auxiliaries and village level agents, has already been adopted by some countries for zones of rural development in Africa, Asia and Latin America. The programmes of several non-governmental organiza-

tions in various countries also provide interesting models and prototypes.

90. As observed earlier, to sustain a programme of community action such as this in its rural reaches would require a degree of regular formal support from central ministries down through the provincial and district networks. The test of successful organization would lie in ensuring the necessary support in a flexible, cooperative manner, avoiding bureaucratic rigidity and encouraging personal initiatives and community enterprises.

91. This concept of basic services has far-reaching implications and would require, in each participating country, detailed preparation and planning, including the following elements:

- (a) political endorsement of the concept of comprehensive basic services to be extended specifically to underserved communities;
- (b) decentralized planning, involving the participation of the target communities;
- (c) mobilization of resources—community, government (local and national), bilateral, multilateral and non-governmental;
- (d) establishment of appropriate administrative structures and devolution of authority and responsibility for the implementation and development of the programme, for coordination of activities and for programme evaluation;
- (e) personnel training;
- (f) development of project support communication systems;
- (g) strengthening existing rural establishments and progressive extension of national administrative structures to provide adequate and accessible referral, supervisory, logistical and other supporting services.

92. While a community as a whole would benefit from such a programme, its main thrust is towards improving

the life prospects of the most vulnerable groups—young children, expectant and nursing mothers and school-age children—by direct as well as indirect delivery of benefits. Health care exemplifies direct delivery; agricultural extension—by motivating cultivators to produce more and better foods to benefit the vulnerable groups—an indirect delivery. Educational activities for the community should improve the chances of the young for a more decent life, support responsible parenthood and improve, in general, the quality of life of hitherto neglected communities.

IV. MOBILIZATION OF NATIONAL AND LOCAL RESOURCES

93. In the poorer countries some of the resources for the development of basic services as described should be sought from the hitherto untapped resources of the communities themselves. In addition to their capacity to make contributions in cash or in kind, (labour, local materials, use of existing structures and facilities) there would be a wealth of traditional skills, knowledge and experience which could be drawn upon. But a programme would only successfully evolve if communities, accepting the idea of a number of related activities as desirable in the interests of their children and themselves, are encouraged, from the outset, to help plan and assume responsibilities for the programme. This approach represents, in essence, decentralized planning and the concept of doing things with the people rather than for the people.

94. Public participation is envisaged as a partnership with the local representatives of government and other authorities. In addition to the voluntary direct contributions of the community to a programme, the local administration, including the tax authority, would need to be involved in considering possible redistribution of existing revenue resources or of raising new revenues in the interests of an agreed programme. On-going community expenditures might be reviewed in order to establish what might possibly be more productive outlay if invested in a basic services programme.

95. At the national level, to meet the demands on finances and manpower that such a programme implies, a government might

arrange to review the disposition of funds within existing national and local authority budgets to establish what reappropriations may be possible. The redirection of some funds from contemplated modern sector urban projects to a rural programme suggests itself. (The Government of the United Republic of Tanzania, for instance, under its declared health policy, will assign priority under its development budget to the extension of rural services over any further increases in urban services.) A review of the disposition of existing urban manpower may identify posts which could be reassigned to the rural area. Relieving professional personnel of the routine services that now absorb their time so that they might do more supervision and training, and assigning these routines to trained auxiliaries, would be an economically sound and effective manoeuvre to increase productivity. Multiple use of departmental training facilities and consolidation of administrative services are other mechanisms by which the extension of rural services might be economically facilitated. The productivity of many existing field establishments could doubtless be increased, without additional expense, by better direction, supervision and accountability. The task is to obtain optimum benefit from available and potential resources—local, provincial, national and international—by effective coordination and the adoption of innovative strategies and techniques in the formulation and execution of programmes.

V. SOME EXAMPLES OF BASIC COSTS OF SECTORAL ACTIVITIES WITHIN RURAL DEVELOPMENT PROGRAMMES

96. While a certain amount of data is available relating to the basic costs of sectoral activities within rural development programmes (e.g. health care, nutrition, family planning, water supply), similar information is difficult to come by with regard to agricultural extension, non-formal education and generalized social welfare activities. It is more difficult to locate models and over-all costs of comprehensive programmes, combining all the above activities.

97. However, some reported cost figures of training, construction and maintenance of facilities, and tried patterns of staffing peripheral services, do provide useful indicators of how such services may be effectively organized with support from the national network. There are also examples suggesting how national networks may be substantially extended by reallocating existing resources—less major urban hospitals and more rural health centres and clinics—and by deploying more auxiliary staff and enlarging their responsibilities so as to release professionals from routines.

98. Because of established budgetary conventions, the fascination of prestige projects and the political punch of the modern sector, the reallocation of national resources, which a major programme of basic services implies, would call for enlightened leadership. Professional monopolistic attitudes would have to be overcome to increase the opportunities and responsibilities of auxiliaries and village agents within national services. A

number of countries have, fortunately, set the example.

99. Cuba, Malawi, the United Republic of Tanzania, and the Sudan, for instance, rely heavily on auxiliaries and paramedicals for routine health services, thus releasing, for supervision, the limited number of doctors available. Wider population coverage is thereby achieved, elementary though it be. The principle is sound. Significant results in health care are to be attained by striving for maximum population coverage with minimal basic care rather than high-level service accessible only to a minority.

Health services

100. The following examples of comparative costs of training professional and auxiliary personnel show the economic sense of such manpower policies.

TABLE 4. Examples of training costs¹⁶

Country	Doctors	Nurses (In US dollars)	Auxiliaries
Thailand	6,600	1,200	350
Colombia	24,600	3,000	1,000
East Africa	26,000	9,800	1,000
United Republic of Tanzania	35,000	—	2,100

These figures suggest that, on average, some 20 auxiliaries can be trained in developing countries at the cost of training one doctor.

¹⁶ J. Bryant, *Health and the Developing World* (Ithaca, Cornell University Press, 1969)

101. In table 5 below, the comparative costs and health returns respectively of urban hospitals and rural centres have been calculated for the United Republic of Tanzania and serve to highlight the contrast in cost/benefits between these two types of institutions viewed from the national angle.

TABLE 5 Comparative costs of services of one district hospital and 15 rural health centres in the United Republic of Tanzania, 1971¹⁷

	Input		Output per year			Population Coverage
	Capital (In thousands of Tanzanian shillings T. Sh).	Recurrent	Out- patient visits	In- patients		
200-bed hospital	6,000.0	2,060.0	400,000	9,000		10,000—30,000
15 rural health centres	6,000.0	2,250.0	1,100,000	15,000		300,000—500,000

Note: 7 T.Sh.= \$US 1.

The table indicates the far greater coverage of population that can be achieved through a network of smaller facilities as opposed to a hospital. The 15 health centres could provide virtually all the curative and preventive health care needs of a district population of up to a half million people. In contrast, the hospital would serve relatively well the curative needs of only the 10,000 to 30,000 people in the urban area in which it was located. (Service to serious cases in the surrounding area is not effective unless there is a referral system based on local health services.)

¹⁷"Resource Allocation, Equality of Access, and Health", *International Journal of Health Services*, vol. 3, No. 3 (Summer 1973) (New York, Baywood Publishing Company, Inc., 1973).

102. The table also shows that for around 75 cents (US) per inhabitant, it was possible in 1971 for the United Republic of Tanzania to provide, through rural health centres, the necessary health service infrastructure so as to cover up to 500,000 people. That coverage is being intensified with the additional provision of smaller units (dispensaries), each to serve approximately 6,000 persons, at a running cost for six dispensaries equal to that of a health centre. Therefore a complete rural network of health centres and dispensaries would cost to run on a per capita basis, around \$1.50 per annum.

103. Another 75 cents (US) per capita would cover the running costs of a 200-bed district referral hospital. Thus, for perhaps \$US 2.25 per capita (at 1971 prices) it was possible to have, in a very poor African country a complete health care system capable of providing an overwhelming proportion of the preventive and curative health care needs of the population.

104. A compact, closely supervised, rural health project in the Punjab, India, providing comprehensive health care for a population of 25,000, estimated costs per patient per annum, as between \$1 and \$2. A less compact project in Indonesia reported annual patient costs at \$0.32 for medical, childcare and family planning services. A comprehensive childcare project in West Africa estimated its costs at \$0.80 per annum per patient. "Under-five" clinics are being run in a number of countries at a cost of roughly \$1.50 per year per child served.

105. In Companyganj, Bangladesh, in a non-governmental agency project, comprehensive health care is provided for a population of 120,000 through two health centres, offering referral services, and five subcentres. The costs per patient treated averaged \$1.60 per annum. In another non-governmental, multipurpose, rural development project at Savar, Bangladesh, providing comprehensive care under a voluntary contributory insurance scheme, annual costs per patient treated averaged \$1.80.

Nutrition services

106. A typical nutrition recuperation centre in Guatemala is staffed by a superintendent, a nursery attendant and a cook. Total annual operating costs amount to \$4,750, (wages \$2,350; rent and maintenance \$600; food \$1,800). All food is locally purchased, including "Incaparina" at a subsidized price. On an average, 30 children needing recuperation are fed daily. Food costs per day \$0.16, or \$58 per year. Total cost per child per day \$0.45.

107. In Haiti, a nutrition centre is manned by one "nutrition auxiliary" and a cook. Annual operating costs total \$2,860, of which \$1,320 covers wages. Local meat and vegetables are purchased and combined with donated CSM/WSB and oil. Thirty to thirty five children are fed daily. Estimated food costs are \$0.14 per day, or \$51 per year. Total costs per child per day \$0.26. In both Guatemala and Haiti efforts are made to educate mothers in nutrition and child-feeding methods.

108. In the district of Yako, (Upper Volta), a major campaign against malnutrition in infants and young children is under way. This is in an area having only one doctor for a population of 300,000. The undoubted success of the campaign is attributable to the simplicity of the means employed. A health centre at Yako and subcentre at Gourcy provide a comprehensive immunization service and a rehabilitation service for severely malnourished young children. Six hundred such child patients were admitted to these modestly equipped centres during 1974 for an average stay of three weeks. During this period, under the guidance of locally trained "monitrices", mothers are taught to prepare the diet for their children and otherwise to look after them during the course of treatment. The diet consists entirely of commonly available products and comprises a mixed gruel of ground millet, cowpeas or black-eyed beans with drips of red palm oil. The mother, watching her child's progress learns that the cure for his sickness lies in her own hands. She returns home with her child and with a message to impart to her neighbours.

109. An extended nutrition education campaign has been organized using girls and women as voluntary workers to demonstrate how suitable diets can be prepared from local commodities. The programme also encourages the development of home gardens, and the organization by communities of village centres for supplementary feeding of children who are judged to be undernourished by the simple tests of appearance and skin-fold thickness. Because of the integration of the Yako Centre's various activities, it is difficult to isolate the costs of the nutrition programme *per se*. The degree of voluntary public participation and use of commonly available foods, however, suggests a pattern of operations so economical as to be capable of adoption by many rural communities.

Water supply

110. Typical per capita capital costs of equipment for simple water supply systems for rural communities of 1,000 persons as estimated by WHO are:

Dug wells	\$3.00
Shallow tube wells	\$2.40
Shallow drilled wells	\$3.00

Total costs, of course, vary depending on accessibility of the area of operations, hydrological factors, and charges for technical services required.

111. In Bangladesh, shallow tube wells have been installed in a country-wide programme at a per capita cost of \$1.35. This lower figure may be accounted for by economies of scale and the facility with which wells may be sunk through alluvial soil, using simple traditional techniques. Elsewhere, for hard-rock areas, rigs, special drills and transport may be required together with qualified operators. These requirements, plus the longer time needed for well completion, substantially increase unit costs and therefore per capita costs. Costs of maintenance of pumps are low and could be met by the community.

Other activities

112. Programmes to improve the quality and quantity of foods produced and consumed locally, to introduce simple technologies and to organize activities especially directed towards the interests of women, admit of such a wide variety of methods and approaches that it is difficult to calculate per capita costs. The aim would be to make maximum use both of local skills and materials to reduce the drudgery that consumes the time and energy of village women, to improve conditions in the home and, by the introduction of simple facilities, to increase the productivity of families and thus to improve the condition of their children.

VI. IDENTIFICATION OF A TARGET POPULATION

113. Because of the numbers of people affected, the problems of the developing world can appear so vast and intractable that they defy attempts at analysis and solution. But attempts there must be, and analysis shows that the task is not overwhelming. For the world community to ignore, or resignedly tolerate, the conditions under which millions live in the least developed countries is unacceptable on grounds of both morality and mutual self-interest. Nations and their economies are growing increasingly interdependent. The purpose here is to attempt a breakdown of the total population of the developing world in order to identify those sectors that demand priority attention. A "target population" is thereby established for delivery of minimum basic services in support of which it is reasonable to expect that the necessary resources will be forthcoming.

Target population

114. The World Bank estimates that there are some 700 million persons in the rural areas and 200 million in the cities of the developing world living in absolute or relative poverty. "Absolute" poverty is defined by per capita income of \$50 or less; "relative" poverty, by above \$50 but less than one third of the national average per capita income for the country concerned.

115. Children under five years and expectant and nursing mothers represent the most vulnerable groups within deprived communities. Children of primary school age (6-12) also stand in need of care and attention. The following are their estimated numbers in the poorest regions.

TABLE 6.

Population in absolute or relative poverty

	<i>Rural</i>		<i>Urban</i>		<i>Total</i>	
	<i>Number</i> (million)	<i>Age group</i> %	<i>Number</i> (million)	<i>Age group</i> %	<i>Number</i> (million)	<i>Age group</i> %
Children 0-5 years	119	17	34	17	153	17
Expectant and nursing mothers	28	4	8	4	36	4
Children 6-12 years	126	18	36	18	162	18
Others	427	61	122	61	549	61
Total	700	100	200	100	900	100

116. Combining the vulnerable and the primary school age groups, we have target populations of 273 million (rural) and 78 million (urban) as the special focus of basic services. For practical reasons the needs of these groups may in most cases best be serviced indirectly rather than directly. That is, by service to the community as a whole through preventive health measures, safe water supply and sanitation; by addressing all women in matters of home care, family welfare and food preparation; and by involving all cultivators in improved food production and all youth in literacy, skills and job-oriented training.

VII. ORGANIZATIONAL PATTERN

117. It would, of course, rest with the government, when deciding to embark on a programme of basic services, to determine the appropriate system of organization and management. Factors which may determine choice would include the nature and strength of existing infrastructures and the degree of local autonomy which already characterizes development planning. The pattern of organization would, of course, differ between rural and urban areas.

118. For the rural areas, it is possible to envisage a system of organization and management structured on four interlinking levels of function and responsibility: (a) the community level; (b) the first referral level; (c) the supervisory/co-ordinating level and (d) the national level, (or state and central levels in a federation). In some countries, depending upon their administrative and political structures, levels (b) and (c) may combine in respect of some, or even all, of the services; conversely, level (d) may divide between state and federal authorities. The following are the suggested functions of the various levels.

Community level

119. The basic services concept is predicated on programme activities being introduced into the every day life of the community and on the support of existing social, political and religious institutions. Where additional facilities such as school or other buildings are essential, it would be the responsibility of the community to provide the main structures in simple style, using local materials. Roofing material and supports may

need to be provided. It would also be the responsibility of the community to select persons from among themselves to receive training and thereafter to serve as "primary level workers" or village agents. The functions of the primary level workers, after receiving suitable training would be to serve as conduits for the delivery of services to their communities, and to motivate these communities in respect of actions on health, food and nutrition, safe water, basic education, family planning, supporting services for women and the adoption of simple technologies.

120. The number of such workers required within a given community would vary with the range of activities undertaken and would also depend on how many functions an individual is capable of performing. This paper assumes 5 workers for a community of 1,000 for the full range of services discussed. For example, for health services there would be 2 workers, a village midwife and a healer/public health worker; for agriculture extension, there would be a "good farmer"; for home and child care/women's activities, a "good housewife"; and for education, an educator (a literacy trainer or school monitor). The community, through an existing representative group organization, or specifically constituted programme development committee, would be responsible for determining priorities within the programme and would provide non-technical support.

First referral level

121. This would represent the nearest point in the national network of public services to which a primary level worker could refer members of his community requiring treatment or advice beyond his own capacity, and to which he himself could also turn for guidance in carrying out his own duties. Commonly, the first referral level would be at "block", "union", "thana" or "subdivisional" level, depending on the size of the country. At this level a health centre or major clinic would provide for referral in health matters. The local offices of the departments of agriculture, social welfare, public health, engineering and education would provide services related to their specialities. In

the case of education, the "nuclear" or "central village school" might serve where these systems have been adopted. In certain cases referral may have to go up to the district level.

122. It can be foreseen that energetic primary level workers will generate an additional workload for the establishments and staff at the referral level. This implies the employment of an increased number of auxiliaries to provide the required services, to participate in the training of the primary level workers and to supervise the performance of these workers within their communities. A total of 10 auxiliaries, 2 persons for each main activity, would possibly be required at each referral location.

123. Because of the paucity of accessible referral services in the least developed areas of some countries, there is likely to be need for a substantial extension in this sector of the national network. In the health sector, to ensure referral services within reasonable distance of communities, it may be necessary to construct and equip new health centres or mother and child health clinics. Other services being less institutionalized than health at this level, would require relatively less capital investment, though they may need storage space and some equipment to deal with the supplies and logistical aspects of the programme. Their prior requirement would be for more staff than they have customarily had available.

The supervisory/coordinating level

124. This level in the organizational structure of the programme is represented by the district, (prefecture, province), with headquarters usually in the charge of a senior official (deputy commissioner, prefect, governor), exercising powers, as delegated by the national or state governments, for the general administration of the district, for the application of government policies and for the coordination of the public services within his jurisdiction. The population of a district may range up to 500,000 in some continents and up to 2 to 3 million, as in some countries in Asia. The technical departments of government—health, agriculture,

education, etc., are usually represented at district headquarters by senior technical officers and field staff responsible for the implementation of their respective sectoral programmes under the general coordinating authority of the senior administrator.

125. Rural development activities in general require a degree of decentralization in planning and execution to become effective. In the case of basic services predicated on active community participation, decentralization and the delegation of some discretionary powers to the district authorities are prerequisites. This would enable them, within guidelines to be issued by the government, to respond, for instance, to community views on programme priorities in the planning and implementation of such a programme, and otherwise to adapt to special local circumstances. It is the district officers of the technical departments who would be responsible for directing the implementation of the components of a basic services programme relating to their particular expertise, for supervising on-going work, and, as indicated, for coordinating their respective activities, under the general guidance of the district administrator and local people's representatives. They would be responsible for the orientation of staff, both professional and auxiliary, and for continuous on-the-job, as well as periodical, in-service, refresher and progressive training activities. Some additional professional staff would be required at this level to assist in training and supervision.

The national level

126. The concept of a group of interrelated basic services has implications at the national level for a number of ministries and departments in that it cuts across conventional sectoral planning and programming procedures. A basic services programme by nature is innovative and long-term and, by reason of these factors, will require continuing attention at the national levels in order to ensure:

- (a) common interpretation of policy by the ministries concerned;

- (b) appropriate budgetary allocations;
- (c) proper apportionment of external contributions;
- (d) effective co-ordination in the administration of the programme and
- (e) accountability.

127. To meet these requirements and thus provide effective expression of the government's political will, it is suggested that a special bureau be established in the office of the president, or the prime minister, and placed under the charge of an experienced officer with a title such as National Coordinator, Basic Services Programme, and with appropriate administrative support. This officer would convene and preside at meetings of representatives of the technical ministries concerned, and ministries of finance and local government and others as necessary.

128. An important initial function of the bureau, in consultation with the ministries, would be to formulate general guidelines for the administration, execution, coordination and monitoring of the programme. A main element in such guidelines would be the specification of the responsibilities and the discretionary powers to be delegated to district officers in relation to programme planning and execution. This level would ensure the proper orientation of the senior district officials through conferences and seminars. Other important functions would be to coordinate training activities throughout the country and to produce and disseminate project support materials. For these purposes it is proposed that suitably qualified officers be appointed as directors of national training programmes and of programme support and communications services. In short, the main functions and responsibilities at the national level would be to provide impetus to the implementation of agreed policy, ensure general support for and coordination of the programme, and arrange for continuous evaluation with the objective of achieving maximum effectiveness.

VIII. REQUIREMENTS AND COST ESTIMATES

129. Because of the variety of local conditions that have bearing on the components of basic services, the best that can be done, until specific country studies are undertaken, is to offer some broad approximations and to suggest *an order of magnitude* of the resources required. What follows is an attempt to gauge the minimum essential requirements of personnel, material and finance for meeting the basic needs, primarily of children and mothers, in the low income countries.

130. Taking first the rural areas, the requirements of the programme are estimated separately for the four levels of the organizational pattern described in the preceding chapter. The estimates are for total financial costs, both capital and recurring, not counting the value of labour or other local contributions in kind, spread over a fifteen-year period during which basic services would be progressively extended to cover the target populations.

The community level

131. The method of calculation employed at this level is to estimate requirements for a hypothetical community of 1,000 persons, and then to multiply by the factor of 700,000, this being the number of such communities that would constitute a total rural population of 700 million. External assistance is calculated over five years for each community.

132. A number of workers or village agents, selected by the community, would be required to deliver front-line services to

the community and to provide a linkage between the community and the national network of public services. A ratio of 5 workers per 1,000 persons is suggested. For the 700 million rural population, it follows that 3.5 million such workers would be required. This total implies the need for a very substantial training exercise. Though these village agents would usually continue in their existing occupations, it may be necessary to provide them with some remuneration which, after an initial "running-in" period, should come from the community. It is not intended that these workers become government employees.

133. Maximum use would be made of school structures and the services of primary school teachers where they exist. Schools and teachers are likely to be declared a priority need by many communities lacking them. Of the 126 million children of school age, (18 per cent of the total 700 million rural population), it is estimated that only half have access to a school. Provision is therefore made in the estimates for schooling for 63 million children. This includes the provision of trained teachers in the ratio of 1 per 50 pupils, (1.26 million teachers); of supplies of roofing material,(usually not available locally);and of classroom equipment. The community would be responsible for the main building structure and its upkeep, and might contribute to the salary of the teacher.

134. Equipment and supplies would be provided to each community at an estimated average cost of \$1,000 for non-expendable items plus \$1,000 a year for 5 years for consumable items. The annex indicates some typical items and costs.

First referral level

135. This level represents the furthest outreach into the rural areas of the ministries concerned with the delivery of basic services for children i.e. health, agriculture, education, etc. Technical staff from these ministries are usually located together in a small township where, from their respective health centres, agricultural depots, education offices, etc., they provide

TABLE 7. **Community level
estimated requirements and costs**

Personnel	<i>Numbers required (millions)</i>
<i>Primary level workers</i>	
In the ratio of 5 workers per 1,000 persons, for 700,000 communities i.e. 3.5 million plus allowance for dropouts and replacements	4.0
<i>Primary school teachers</i>	
For 63 million school-aged children in the ratio of 1 teacher per 50 pupils	1.26
	<i>Estimated costs (in \$US millions)</i>
Training	
<i>Primary level workers</i> (4.0 million)	
Introductory and refresher training annually for five years at \$10 per head per course	200.0
<i>Primary school teachers</i> (existing 1.26 million)	
Reorientation and refresher training annually (for 5 years) at \$15 per head per course	94.5
<i>Primary school teachers</i> (newly enrolled 1.26 million)	
Basic training at \$500 per head per year for 2 years	1,260.0
Remuneration	
<i>Primary level workers</i> (3.5 million; dropouts excluded)	
Subsidies at \$100 each per head per year	1,750.0
<i>Primary school teachers</i> (existing)	
Honoraria for work beyond official duty hours at \$120 per year for 5 years	756.0
<i>Primary school teachers</i> (new)	
Salaries at \$300 per year for 5 years	1,890.00

TABLE 7. **Community level—
estimated requirements and costs (continued)**

	<i>Estimated costs (in \$US millions)</i>
Construction	
Roofing materials for 630,000 schools/commu- nity centres at \$200 per school	126.0
Equipment (non-expendable)	
For 700,000 communities at \$1,000 per community	700.0
Supplies (expendables)	
For 700,000 communities each year (for 5 years) at \$1,000 (per year) per community	3,500.0
<i>Total cost at community level for 5 years</i>	<i>10,000.0</i>

referral services to surrounding communities. It is estimated that one referral "location" should be capable of servicing a neighbouring population up to 35,000. On this basis, population coverage of 700 million persons calls for referral services to be available at a minimum of 20,000 locations. It is estimated that, at best, referral facilities exist at only 10,000 locations and that, at minimum, it is essential to double that number to achieve viable basic services. This development implies the construction and staffing of 10,000 new health centres and the provision of a similar number of workshops, depots or offices, as the case might be, for the other services with the necessary staff for referral and for supervision of the activities of the primary level workers within their communities.

136. At this level substantial numbers of auxiliary personnel would be provided and assigned increased responsibilities. At 20,000 referral locations, both existing and new auxiliary personnel would be necessary in the following fields: health care and

family planning; food production, (including horticulture, pisciculture, poultry management and simple veterinary routines); education, (including literacy, vocational and craft techniques); village technology, and programmes for women and youth. This listing is illustrative, not exhaustive. Services would be extended to larger numbers of people by using auxiliaries, and professional staff, relieved of routines, would be able to devote more time to direction, training and supervision.

137. Major personnel costs at this level would arise from salaries for professional staff needed at 10,000 newly created referral locations, and for the training of auxiliaries and their remuneration.

TABLE 8

**First referral level
estimated requirements and costs**

Personnel		<i>Numbers required</i>
<i>Professional staff</i> (graduates/diplomates)		
For 10,000 newly created referral locations 1 professional per service for each of 5 services		50,000
<i>Auxiliaries</i>		
For 20,000 locations (existing plus new), 2 persons for each of 5 services		200,000
	<i>Estimated costs (in \$US millions)</i>	
Training		
<i>Professional staff</i>		
Reorientation and refresher training for 5 persons from 20,000 referral locations each year for 5 years at \$50 per person per course		25.0
<i>Auxiliaries</i>		
Basic training course for 200,000 persons at \$1,000 per person per course		200.0

TABLE 8 **First referral level**
estimated requirements and costs (Contd.)

	<i>Estimated costs (in \$US Million)</i>
Refresher training for 200,000 auxiliaries each year for 5 years at \$15 per person per course	15.0
Remuneration	
<i>Professional staff</i> (It is assumed that 50 per cent of the 50,000 persons required will become available by re-deployment of existing staff and 50 per cent, i.e. 25,000 by new recruitment)	
Salaries for 25,000 staff at \$2,000 per annum for 5 years	250.0
<i>Auxiliaries</i>	
Salaries for 200,000 persons at \$360 per annum for 5 years	360.0
Construction	
Construction of health centres, depots/workshops at 10,000 new referral locations at \$20,000 per location	200.0
Supplementary facilities at 10,000 existing locations at \$5,000 per location	50.0
Equipment (non-expendable, including transportation)	
For health, water supply, agriculture, education and other social services	350.0
Supplies (expendable)	
For 20,000 referral locations for each of 5 years at \$3,000 per location per year	300.0
<i>Total cost at first referral level over a period of 5 years</i>	1,750.0

The supervisory/coordinating level

138. While the population of districts, depending on the size of countries, may range from less than 0.5 million to more than 2.5 million, an average population of 1 million per district is assumed as a basis for the estimates that follow. On this assumption there would be some 700 district headquarters to be considered.

139. A major requirement would be the reinforcement in each district of the professional/technical staff responsible for the development and over-all public administration that relate directly to basic services. This might be done by the appointment of special officers to each technical department with specific responsibility for its component of the basic services. Alternatively, a deputy might be assigned to each of the senior officers concerned. In the ratio of 5 additional professional/technical officers per district, a total staff of 3,500 would be required.

140. A substantial workload would accrue at this level in respect of training, especially with regard to the professional personnel and auxiliary staff at the referral level as shown in the estimates for that level. It is proposed that training officers, two per district, be assigned with continuing responsibility for the organization and management of the variety of training programmes to be conducted at district level. Departmental staff would, of course, actively participate in the training exercises.

141. To provide opportunity for practical field experience, specific locations would be selected where realistic training could be given under conditions characteristic of the rural areas. Such training areas would offer the additional advantage of group training, involving professionals, auxiliaries and as necessary, primary level workers, where they could jointly practice their individual, but interrelated roles. Initially, it is proposed that one such training area might serve three contiguous districts. Later, as the basic services activities are sufficiently organized, selected participating communities might serve as field training areas.

142. An essential prerequisite to all the arrangements discussed above is that all the senior administrators and all professional and technical staff functioning at district level be first given suitable orientation to the basic services concept and its inter-related activities. This might be done, with linkages to the national level, through introductory conferences and seminars and sustained by subsequent periodical workshops.

TABLE 9. The supervisory/coordinating level estimated requirements and costs

Personnel	<i>Numbers required</i>	<i>Estimated costs (in \$US millions)</i>
Number of district headquarters, assuming an average of 1 million population per district	700	
Professional staff to assist existing heads of technical services in supervision and training, (health, water, agriculture, education, social welfare), say 5 per district	3,500	
Training officers, say 2 per district	1,400	
Training		
Reorientation of district administrators (700), technical officers (3,500) and training instructors (1,400) in periodical seminars and conferences over a 5 year period		1.0
Organization of field training/demonstration areas for group and sectoral training courses, 1 area per 3 districts		0.6
Remuneration		
Salaries for 3,500 newly assigned professional staff and 1,400 training instructors at \$2,000 per annum for 5 years		49.0

TABLE 9.

**The supervisory coordinating level
estimated requirements and costs (Contd.)**

	<i>Estimated costs (in \$US millions)</i>
Equipment and supplies	
Training equipment; materials and transportation for supervision and logistical services at \$15,000 per district	10.5
<i>Total costs at supervisory/coordinating level over five years</i>	<i>61.0</i>

The national level

143. To fulfil the functions and responsibilities ascribed to this level (para. 128), governments would make a careful selection of appropriately qualified officers for appointment to those crucially important posts. Howsoever they may be locally designated, the posts would in effect be firstly, the national co-ordinator of the basic services programme, secondly, the national director of basic services training programmes and, thirdly, the director of programme support and communication services. The posts and the necessary supporting staff and services would be a charge to the national budget.

144. Experience shows the vital importance of "programme support and communication services" to any major developmental programme. When community participation is a required mainspring for a programme, such supporting services become exceptionally important for motivation, maintenance of interest and optimal impact of activities. The morale and effectiveness of cadres engaged in a programme can be influenced and sustained. Provision for programme support and communications services is therefore included as a component of the required national machinery for the organization of basic services.

TABLE 10. **The national level
estimated requirements and costs**

	<i>Estimated costs (in \$US millions)</i>
Personnel	
National coordinator of basic services programme; director, national training programme for basic services; director, programme support and communications service; administrative, technical and clerical assistance	5.0
Equipment and supplies	
For offices of national coordinator and director, national training programmes; for programme support and communication services; transportation	50.0

Recapitulation of costs

145. The following is a recapitulation of the cost estimates presented of the major requirements for developing the essential infrastructure and for providing basic services to 700 million persons in underserved rural areas of the least developed countries.

TABLE 11. **Recapitulation of costs**

	<i>Personnel</i>		<i>Total</i>	
	<i>(in millions of US dollars)</i>			
Community level	6,000.0	4,000.0	10,000.0	
First referral level	850.0	900.0	1,750.0	
Supervisory/coordinating level	50.0	10.0	60.0	
National level	5.0	50.0	55.0	
		<i>Total</i>	11,865.0	
		<i>(say)</i>	12,000.0	

Time-table for financing the launching of basic services in rural areas

146. It is certainly not envisaged that activities of this nature and dimension could be started up simultaneously in all 700,000 rural communities. On the other hand, the urgency of the needs of the present generation of children in these underprivileged communities calls for major action without undue delay. Recognizing the urgency, but with consideration for what, in practical terms, might be feasible within a limited time-frame, a schedule is proposed which "stammers" the start-up of operation in the 700,000 communities over the initial ten years, as shown in table 12 below. It is intended that assistance be given to each community for a period of five years. Communities which were last in starting up, that is, in the tenth year, would extend the requirement for external assistance to year 15. After receiving assistance for five years, and recognizing the benefits that would have been derived in improved levels of living, it is assumed that the communities, local authorities and central governments would combine in finding all the necessary resources for continuation. The communities would be expected to maintain their primary level workers and to meet the costs of supplies that they would continue to require (drugs, fertilizers, seeds, spare parts for water installations, etc.).

147. The additional costs to governments would be for personnel and operational costs for the maintenance of the extended national network of referral services, and for supervision and training. Increased productivity and economic improvement resulting from their other development activities would, it is hoped, be a factor allowing governments to increase their budgetary allocations to the social sector.

148. Table 12 illustrates a progressive pattern of implementation by introducing basic services to 50,000 communities in each of the first two years, and thereafter to 75,000 communities per year up to year ten. With the completion of five years' assistance to each community, the continuing local costs would be the community's own responsibility.

149. The cumulative total of communities served gives an aggregate of 3,500,000 community/year service. Dividing total estimated costs, \$12,000 million, by total community/year service, provides a unit cost of \$3,430 per community/year for costs at all levels.

Assistance required from external sources

150. From the above calculation of unit cost, it is possible to compute total costs for successive years of the programme, and to indicate the magnitude of required external assistance (table 12). On the assumption that countries themselves take over an increasing share of costs, external assistance is calculated at 90 per cent of costs in the first year of operation, 70 per cent in the second year, 50 per cent in the third year, 30 per cent in the fourth year and 10 per cent in the fifth year. This calculation is repeated for yearly extensions to cover new groups of communities.

TABLE 12.

Progressive implementation by numbers of

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	<i>numbers of communities</i>
Communities in start-up phase (new)	50.0	50.0	75.0	75.0	75.0	75.0	75.0	75.0
Cumulative total of communities served	50.0	100.0	175.0	250.0	325.0	350.0	375.0	
								<i>in millions of \$ US</i>
Total costs of communities in start-up phase	172.0	344.0	600.0	878.0	1,115.0	1,201.0	1,286.0	
<i>Of which</i>								
External assis- tance costs	154.0	274.0	488.0	549.0	609.0	635.0	644.0	
								<i>numbers of communities</i>
Communities in maintenance phase	—	—	—	—	—	—	—	50.0 100.0

communities, total and external assistance costs; (rural)

Year 8 Year 9 Year 10 Year 11 Year 12 Year 13 Year 14 Year 15
(in thousands)

75.0 75.0 75.0 — — — — —

375.0 375.0 375.0 300.0 225.0 150.0 75.0 —

1,286.0 1,286.0 1,286.0 1,029.0 772.0 514.0 257.0 —

644.0 644.0 644.0 412.0 232.0 103.0 26.0 —

(in thousands)

175.0 250.0 325.0 400.0 475.0 550.0 625.0 700.0

Total costs over the fifteen-year period \$US 12,000 million

of which external assistance \$US 6,000 million

IX PROVISION OF BASIC SERVICES TO URBAN SLUMS AND SHANTY TOWNS

151. This discussion does not relate to the general problems of urbanization which have assumed such magnitude in many developing countries and call for fundamental policies and mammoth resources for their solution. Here the concern is with ways and means of meeting the most elementary and basic needs, particularly of the women and children living in the poorest of urban slums and shanty towns. Because of the absence of an infrastructure in these areas and of the limitation on the availability of public financial resources, basic services would require a very substantial element of "self-help". Experience in many countries indicates that among slum communities, individual enterprise, as well as group cooperation, are characteristic features. As in the rural areas, community participation would be a prerequisite and a major resource for the establishment of basic services.

152. Wide variety may be anticipated among urban slum and shanty town communities in respect of their social organization and their status *vis-a-vis* the local administration. No general pattern of administrative arrangements can therefore be suggested for the development and supervision of basic services within these communities. The assignment of functions and responsibilities would need to be considered location by location.

153. Within slum communities, children and girls in particular are placed at special risk because of the absence of parents from the home, either at work or seeking employment. Day care

along with health protection, home improvement, water supply, sanitation and education would be important services to be organized.

154. Unit costs per urban community of 1,000 persons may be expected to be higher than for rural communities by reason of the more highly monetarized system within which they live, their inability to grow food and consequent dependence on the market, with its higher prices in relation to slum family incomes.

155. Table 13 suggests a progressive pattern of implementation in which start-up activities are undertaken in all 200,000 urban communities within the first ten years. External assistance would be completed by the fifteenth year in the case of those communities last entering into participation. As in the rural areas, each urban community, after receiving assistance for 5 years, would become responsible, in cooperation with the relevant authorities—national, provincial and local—for the continuing maintenance of the basic services.

156. Table 13 also provides an aggregate of 1 million community/year service. Total estimated costs, \$4,000 million, divided by total community years service, provide a unit cost of \$4,000 per community/year.

157. Applying the same de-escalating formula as in the case of rural communities, table 13 indicates the total number of communities in the process of developing services during each year; the total costs and the cost of external assistance by year; and the number of communities which, having received assistance through five years, enter the maintenance phase progressively as from the sixth year.

158. The tabulation of the external assistance required by year of activity for rural and urban areas, as computed in tables 12 and 13, indicates the following distribution of requirements over a fifteen year period.

TABLE 13. Progressive implementation by number of communities,

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
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numbers of communities

Communities in start-up phase(new)	10.0	10.0	10.0	20.0	25.0	25.0	25.0
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Cumulative total of communities served	10.0	20.0	30.0	50.0	75.0	90.0	105.0
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in millions of \$US

Total costs of communities in start-up phase	40.0	80.0	120.0	200.0	300.0	360.0	420.0
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Of which

External assis- tance costs	36.0	64.0	84.0	132.0	182.0	216.0	238.0
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numbers of communities

Communities in maintenance phase	—	—	—	—	—	—	10.0	20.0
--	---	---	---	---	---	---	------	------

total and external assistance costs (urban)

Year 8 Year 9 Year 10 Year 11 Year 12 Year 13 Year 14 Year 15

(in thousands)

25.0 25.0 25.0 — — — — —

120.0 125.0 125.0 100.0 75.0 50.0 25.0 —

480.0 500.0 500.0 400.0 300.0 200.0 100.0 —

248.0 250.0 250.0 160.0 90.0 40.0 10.0 —

(in thousands)

30.0 50.0 75.0 100.0 125.0 150.0 175.0 200.0

Total costs over the fifteen-year period \$US 14,000 million

of which external assistance \$US 12,000 million

TABLE 14. Recapitulation of external assistance required,
by year of activity

(from bilateral, multilateral and non-governmental sources)

<i>Year</i>	<i>Rural</i>	<i>Urban</i>	<i>Total</i>
<i>(in millions of US dollars)</i>			
1	154	36	190
2	274	64	338
3	488	84	572
4	549	132	681
5	609	182	791
6	635	216	851
7	644	238	882
8	644	248	892
9	644	250	894
10	644	250	894
11	412	160	572
12	232	90	322
13	103	40	143
14	26	10	36
15	—	—	—
<i>Total (rounded)</i>	6,000	2,000	8,000

X. A NEW DIMENSION IN DEVELOPMENT AND A GREATER OPPORTUNITY FOR INTERNATIONAL COOPERATION

159. The broad bases of calculation applied in this document suggest that external assistance of the order of \$8,000 million, and an equivalent investment by the participating countries, would be required to develop the essential infrastructure and to provide basic services for all children and mothers among the rural and urban population, totalling 900 million, in the under-served areas of the low income countries of the developing world. Spread over a period of 15 years, this requirement of external assistance would amount to an annual average of \$500 million.

160. As indicated in the text, the primary objective in attempting to quantify requirements and costs has been to suggest a general order of magnitude. The concept of basic services, as described in this document, and these broad estimates of costs, are presented as a contribution towards wider public discussion in developing countries and within the international community, of what might be attempted, by concerted and consistent action over the next several years, to assist developing countries in meeting the basic essential needs of those who are the least privileged in the human family.

161. Fortunately, the principles of popular participation, the employment of auxiliaries and the emancipation of professional personnel from conventional routine roles for more dynamic development functions, is already finding acceptance, to varying degrees, in a number of countries. There is need, however, to encourage and extend this strategy of development. The con-

cept of basic services, it is suggested, offers an approach towards meeting the most essential needs of children in a variety of practical ways. It also offers opportunity for opening up a new dimension in international cooperation among governments, organizations and individuals concerned at the plight of the millions who remain underserved.

ANNEX

Typical items of equipment and supplies with estimated costs per community for 5 years "running-in" period

Service	Typical items	<i>First year requirements of equipment and supplies</i>	<i>Annual average requirement of replacement supplies for succeeding 4 years</i>	<i>Total for 5 years</i>	
				<i>—in United States dollars—</i>	<i>(approx).</i>
<i>Primary health care and family planning</i>	Analgesic, wide-spectrum antibiotic, anti-malarial, rehydration salts, anti-septic, vitamins, minerals, ointment, dressing, infant and weaning food depending on circumstances			100	100
	Vaccines (measles, small-pox, BCG and triple vaccines to be released from referral level and administered by visiting health technicians assisted by primary workers)			40	20
	Non-clinical family planning supplies (pills, condoms)			80	120
	Utensils, scissors, kettles, scales, weight-cards, teaching aids, kerosene lamps, midwifery and first aid kits			50	90
<i>Food production</i>	Seeds, fertilizer, gardening and other tools, chicken wire, teaching aids, veterinary vaccines, "starter" supplies of fish-fry, chicks, ducklings			300	75
					600

Service	Typical items	First year require- ments of equip- ment and supplies	Annual average require- ment of replace- ment sup- plies for succeed- ing 4 years	Total	
				for 5 years	—in United States dollars— (approx).
<i>Education</i>	Teaching aids, reading materials, radios, kerosene lamps, hand-tools, paper, chalks and slates, recreational equipment		300	100	700
<i>Drinking water and sanitation</i>	Hand pumps, pipes, cement and casting moulds		1,220	25	1,320
<i>Village technology</i>	Village tool kits, nails, screws, creosote, materials for improved processing of grain and oil seeds, for solar drying, storage of food crops, water conservation, wind power systems and home improvements. In some cases materials for construction of methane gas units and simple forms of transportation e.g., hand carts and animal drawn carts.		400	100	800
<i>Activities for women and girls</i>	Craft equipment and supplies, radio sets, educational materials, locally fabricated aids to reduce burdensome domestic routines, etc.		100	50	300
					5,310
	<i>Add: Freight (12.5 per cent)</i>				665
					5,975
				<i>Say</i>	6,000

